Research, academic and military background of

Dr. Don M. Huber

Emeritus Professor of Plant Pathology
Purdue University

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A brief career overview

Dr. Don M. Huber has a long, varied and highly productive career focused on plant physiology, microbiology and pathology.

Don grew up on crop and dairy farms in Arizona and Idaho. His training from both University of Idaho (B.S. and M.S.) and Michigan State University (PhD, 1963), was augmented by U.S. Army military service in sensitive areas such as global epidemiology, national production capabilities and national security.

A family man, he takes the education of his children and grandchildren seriously, serving twelve years on local school boards. At the request of the Indiana Governor, he served on the Indiana Education Employment Relations Board seven years as mediator and fact-finder for conciliation of collective bargaining disputes.

Huber began his 50-year academic career with eight years of service as a cereal pathologist at the University of Idaho. He taught, researched and published at Purdue for thirty-five years. His field: soil-borne disease control, physiology of disease, and microbial ecology — a perfect fit which reinforced his unique military work. He is now Professor Emeritus of Purdue University.

Professor Huber received his commission as an army officer in the active Reserve in 1957 after four years in the National Guard. Early in his military career he researched with a select group of scientists to study the impact of nuclear war with specific effects of fallout on agriculture and wyas to recover from such an attack.

From 1963 to 1971 he was assigned to the U.S. Army Edgewood Proving Ground and Ft. Detrick Biological Laboratories in Maryland for research in chemical and biological warfare. He became Operations Officer (S-3) in a USAR Medical Group before moving to Medical Intelligence (business) Department Of Defense.

In 1973 he took command of a specialized Strategic Medical Intelligence Detachment (MIDS) assigned to The Office of the Surgeon General and U.S. Army Medical Intelligence and Information Agency, assisting in formation of the Armed Forces Medical Intelligence Center (now NCMI). He carried out these duties while serving as a professor at Purdue.

Though technically in the Army Reserve, Dr. Huber, whose expertise was in the Soviet Union's biological warfare program, was part of elite nine and ten-person teams of specialized world scientists. In this capacity he commanded MIDS for eight years. Most of these scientists including Dr. Huber worked overtime without pay.

He moved from command of MIDS to Senior Medical Intelligence Analyst and then as Associate Director of the Armed Forces Medical Intelligence Center. Retiring from military service after more than 41 years, he continues work with our intelligence community, where he actively participates in oversight security of biological weapons programs and threat pathogen concerns.

Dr. Huber teaches courses on anti-crop bioterrorism and serves as a consultant on biological weapons of mass destruction and emerging diseases. He advises U.S. agencies on bioterrorism and biological warfare. He currently serves without pay as the American Phytopathological Society's Coordinator for the USDA National Plant Disease Recovery System program and is an active member of the Threat Pathogens Committee.

Dr. Huber participated in the Western Soilborne Disease research group from 1957-1959 and 1963-1971 while at the University of Idaho. This group included pathologists from 15 states researching soil-borne diseases of agricultural crops (CA, AZ, TX, HI, AK, NV, NM, CO, UT, ID, OR, WA, ID, MT, WY). These scientists met annually to study research results.


Dr. Huber, mid-career

He represented Purdue University from 1972-2004 on the Southern Regional Research Technical Advisory Committee on Soilborne Pathogens, covering TX, LA, AR, MS, AL, GA, SC, KY, TN, OK, MD, NC, and VA.

Professor Huber worked with Purdue University on the North Central Regional Research Technical Advisory Committee covering IN, OH, MI, MN, WI, ND, SD, IA, IL, NE and KS from 1990 to 2004. These working groups studied biological disease control for cotton, corn, soybeans, wheat, vegetables and trees. They convened annually to report findings, coordinate research programs and establish protocols for joint research projects.

Don interacted with Dr. Luther Bird (TAMU), a cotton pathologist who developed multiple adversity resistant (MAR) lines of cotton used throughout the industry. Much of this resistance was based upon the cotton plant's micronutrient efficiency and physiology — a science which dovetailed with Dr. Huber's experience. For five years, Don grew cotton in Indiana at Purdue to evaluate disease interactions as an integral part of the Southern Regional Research Program.

This discipline was integrated into his overall research on the physiology, ecology, and control of diseases of wheat, corn, and soybeans, providing a revealing background for understanding the physiology of plants which are sprayed with glyphosate.

During this 30-year period, Don was hosted various times in Texas by Dr. Bird; in the 1980's he was an invited participant in the intensive Texas A&M Phymatotrichum Research review. In this project, he visited the cotton growing areas of Texas. The formal write-up of this review was published by TAMU.

Dr. Huber is an internationally recognized expert on nutrient-disease interactions and has had cooperative research in Argentina, Australia, Brazil, Chile, China, Costa Rica, Denmark, Germany, Mexico, Russia, Taiwan and Tunesia.

Professor Huber became interested in glyphosate because of the commonly observed increase in the take-all disease of wheat following application of glyphosate burn-down herbicide. In the early 1980's, he had established a close correlation of all of the known conditions affecting take-all with an availability of manganese to the plant and its physiological effect on resistance to this pathogen. This research was presented at the International Congress of Plant Pathology in Australia. Another speaker, Dr. Robin Graham, presented identical research on the importance of manganese in disease development.

Subsequently, U.K.'s Dr. David Hornby reported increased take-all of wheat in England after the application of glyphosate. This information related closely with Huber's and Graham's documentation of the linkage with reduced manganese. Results from different labs around the world also show consistent increase in diseases linked to glyphosate and the correlation with manganese and other nutrient deficiencies.

These published glyphosate studies were completed four to five years after glyphosate introduction. This was long before RR crops showed interaction and connection between glyphosate and diseases. The program Huber outlined appeared in articles as early as 1984.

One conclusion of the report: The herbicidal mode of action of glyphosate is through pathogenic action, not a direct phytotoxic effect on the plant.

Glyphosate stimulates hormonal systems in the plant to act as metal chelators which "take out" (immobilize) Mn, Fe, Co, Cu, B, Zn and other trace minerals.

The plant's defense system is effectively shut down and/or damaged, enabling soil-borne pathogens to kill or severely damage the plant.

Therefore, glyphosate is an essential predisposing factor, but it does not actually kill the weeds. If the pathogens are not present (in sterile soil), plants are temporarily stunted by glyphosate, but do not die. This mechanism of glyphosate herbicidal action has been known and published since 1984 but is rarely cited.

Glyphosate also is an effective bactericide in the soil, and has recently been patented as a bactericide. By drastically reducing beneficial bacteria populations in the soil, fungal pathogens in the soil multiply with far less competition.

International colleagues from fifteen nations show their esteem for Dr. Huber by cooperatively publishing many groundbreaking papers and articles.

Dr. Huber has led innovative research on the form of nitrogen, inhibition of nitrification, peptidase profiling for rapid microbial identification, microbial interactions and mechanisms in biological control.

He pioneered research showing the role of micronutrients — especially manganese — in disease prevention. He led studies showing the nitrogen kernel sink as a yield determinant in corn, oxidative interactions in pathogen virulence, and high energy x-ray analysis of pathogenesis. These fundamental findings have stimu-

lated many other researchers and led to improved disease control, improved nutritional efficiency, and higher nutritional quality in crops.

Don's family background

(As related by Don himself)

I was born March 19, 1935 in Mesa, Arizona to goodly parents who taught me responsibility and the value of work on a small irrigated citrus, poultry and dairy farm.

The family expanded their dairy operations with a farm at Chandler, AZ when my father returned from World War II in 1946 and then purchased a dairy farm at Meridian, Idaho in 1950. I graduated from Meridian High School in 1953.

I joined the Idaho National Guard as a private shortly after my 17th birthday, as did almost all (if not all) of the male members in my senior high school class. This was just one of the expectations and things you did as a citizen. I was assigned to a heavy equipment maintenance platoon and the machine shop for an aviation engineers company.

I worked my way through college at a sawmill, construction, shoveling coal, washing pots and pans, janitorial, and various other jobs. I was commissioned an officer through the ROTC program at the University of Idaho.

After receiving my Masters of Science degree at the University of Idaho, I married Paula Elese Towery February 19, 1959. This was shortly before reporting to Fort Bliss, Texas for active duty with the Army as a First Lieutenant in the Air Defense Artillery.

We have been blessed with eleven children (eight young women and three young men).

As of 2011, we have been blessed with 39 grandchildren and one great-grandchild. All of our children have gone to college.

In order of birth, their professional training includes: attorney, accountant/computer software specialist, mechanical engineering (PhD), performing arts (vocal), recreation therapy, accounting/management, elementary education, biology teaching, hospitality management, and architecture.

My wife Paula has college training in Home Economics and Child Development, and is a certified Parenting Skills instructor. Our family is active in The Church of Jesus Christ of Latter-Day Saints where I have had the opportunity to serve as a Stake Financial Clerk, Counselor in a Bishopric, Branch President, Stake Mission President, member of the Stake High Council, and Home Teacher.

Selection of a school was our first priority in moving to Indiana and Purdue University in 1971. While living in Indiana, we were very grateful for the many teachers and excellent education our children had in the Tippecanoe School Corporation (TSC).

I served on the School Board of the TSC, which provided an opportunity to serve the community, and to partially repay the many blessings our family has received because of the commitment to education and sacrifice of so many taxpayers and patrons.

Curriculum vitae by date

Advanced education:

1957: Bachelor of Science, Vocational Education, University of Idaho

1959: Master of Science, Plant Pathology, University of Idaho, Moscow, ID

1963: Doctorate of Philosophy, Plant Pathology, Michigan State University. Graduate, Surface to Air Missile School, Fort Bliss, TX

1971: Graduate, National Security Management, Industrial College of the Armed Forces, National Defense University, Fort McNair, VA, and AMED, Ft. Sam Houston, TX. Graduate, U.S. Army Command and General Staff College

Academic Appointments:

1963-67: Assistant Professor of Plant Pathology, Dept. of Plant Science, University of Idaho, Moscow, ID

1967-71: Associate Professor of Plant Pathology, Dept. of Plant Science, University of Idaho, Moscow, ID

1971-81: Associate Professor of Plant Pathology, Dept. of Botany and Plant Pathology, Purdue University, West Lafayette, IN

1981-2006: Professor of Plant Pathology, Dept. of Botany and Plant Pathology, Purdue University

University Service roles:

Chairman and Member, Purdue Staff Benefits and Compensation Committee

Chairman and Member, Purdue Collective Bargaining Advisory Committee

Member, Purdue Military Affairs Committee

Chairman and Member, Departmental Facilities Committee

Research Emphasis:

Ecology, epidemiology, physiology and control of soilborne diseases; host-pathogen interactions; rapid microbial identification; mechanisms of virulence; nutrient-disease interactions; integrated pest management, waste resource utilization; inhibition of nitrification; herbicide-nutrient disease interactions; international plant pathology

Government Positions:

1953-57: Idaho National Guard, Aviation Engineers Company, Boise, ID

1957-58: Scientist, 5030th USAR Research and

Development Unit, Pullman, WA
1959: Operations Officer, U.S. Army Training Center, Fort Bliss, TX
1960-63: Battery Commander, Ammunition Trains Officer
1960-63: Battalion Logistical Officer (S-4), 8-inch Howitzer Battalion
1964-71: Microbiologist, U.S. Army Materiel Command, Biological Laboratories, Fort Detrick, MD
1965-75: Mobilization designation assignment, U.S. Army Materiel Command, Biological Laboratories, ft. Detrick, MD and Edgewood, MD
1968-70: Legislative Committee, Idaho State Trustees Association
1968-71: Member and Vice-Chairman, School Trustee, School Board, Moscow, ID
1969-70: Legislative Task Force, Idaho State Dept. of Education, Taxation and School Finance
1971-72: Operations Officer (G-3), USAR Hospital Group, Indianapolis, IN
1972-75: Biochemist, U.S. Army Materiel Command, Medical Research Laboratories, Edgewood, MD
1973-87: Tippecanoe School Corporation, Parent Advisory, Financial Resources, Curriculum Review, and Goals Committees; PTO President
1974-80: Mediator/Fact-finder and member of Conciliation Panel, Indiana Education Employment Relations Board (IEERB)
1975-83: Commander, Military Intelligence (Medical) Detachment (Strategic), U.S. Army Medical Intelligence and Information Agency, Washington, DC
1978-83: Participant, National Pest Evaluation and Information Program (American Phytopathological Society and USDA cooperating)
1978: Section Leader and Discussant, National Security Management Symposium, ICAF and Army War College, Pensacola, FL
1978-79: Member, Advisory Board; Office of Technology Assessment; Congress of the United States; and Chairman, Regional Work Group, Corn Belt, Pest Management; Office of Technology Assessment, Congress of the United States
1980: Participant, IPM Study, Council on Environmental Quality, Washington, DC
1982-88: Member: Global Epidemiology Working Group, Armed Forces Medical Intelligence Center
1983-86: Senior Medical Analyst, Armed Forces Medical Intelligence Center, Frederick, MD
1984-92: Consultant, Worldwide Plant Pathogen DataBase Program, USDA-ARS, Frederick, MD
1984-94: Consultant, U.S. Government: Foreign Disease Research and Priorities
1986-88: Associate Director, Armed Forces Medical Intelligence Center, Dept. of Defense
1995: Retired, Army United States (AUS) Colonel (41 plus years of Active, NG, and USAR service)
1990-2000: Indiana Animal Waste Advisory Committee, Indiana Dept. of Environmental Management
1990 - current: Threat Pathogens and Emerging/ Reemerging Diseases Committee
1992- current: Trustee, Tippecanoe School Corporation (School Board)
1993- current: Indiana School Board Association, Delegate Assembly, Awards and Legislative Committees
2008-2011: APS Coordinator, USDA National Plant Disease Recovery System (NPDRS)

Background on Dr. Huber's military experience

After four years in the National Guard, Don became a commissioned Army officer in 1957. He was assigned to a special group of scientists to study the potential impact of nuclear war on agriculture.

In 1963, he was assigned to the US. Army Edgewood Proving Ground and Ft. Detrick, MD biological laboratories for research in chemical and biological warfare.

In 1971, he became Operations Officer (S-3) in a USAR Medical Group for two years, then in 1973 took command of a specialized Strategic Medical Intelligence Detachment (MIDS) assigned to the Office of the Surgeon General and the U.S. Army Medical Intelligence and Information Agency.

His role: Help create a new Armed Forces Medical Intelligence Center, now known as NCMI. During this tour of Army Reserve duty, Don was also fulltime professor at Purdue University. He was Commander of the MIDS for eight years, focusing on the biological warfare system which the USSR had in operation.

He moved from command of MIDS to Senior Medical Intelligence Analyst; then became Associate Director of the Armed Forces Medical Intelligence Center.

Don has continued active involvement with the U.S. military intelligence community since retiring from more than 41 years of active and reserve Army service.

He consults with military specialists on WMD issues and emerging diseases, teaches courses on anti-crop bioterrorism, and consults with U.S. agencies on biological warfare. He currently serves without pay as the APS coordinator for the USDA National Plant Disease Recovery System program and is an active member of the Threat Pathogens Committee.

Industrial and Business Positions and Experience

Research Consultant:

1975-89: Research Consultant, Dow Chemical U.S.A.
1976-83: Research Consultant, Olin Chemical Company

1978-80: Research Consultant, Food Machinery Corporation
1979 - Current: Owner, DecaH Manufacturing
1984-86: Research Consultant, American Cyanamid Corporation
1987-90: Research Consultant, C.I.L., Inc.
1989-01: Research Consultant, DowElanco Co.; Dow AgroScience
1993-03: Lafayette Chamber of Commerce "Third House"
1998-02: Research Consultant, Battelle Memorial Institute
2000 - current: Consultant Mitretech, Noblis
2001-06: Consultant Sabre
2008-10: Research Consultant, J.R. Simplot Company
2011 - current: Owner, NutriAct LLC

Regional Research Advisory Committees:

Southern Regional Technical Advisory Committee S-90, Soilborne Diseases
Southern Regional Technical Advisory Committee S-241, Rhizosphere and Plant Health
Southern Regional Research Technical Advisory Committee S-269/S-302, Rhizosphere Dynamics and Biological Control
Southern Regional Technical Advisory Committee S-244, Animal Waste Management
Northcentral Regional Research Technical Advisory Committee NC-125, Biological Control

Licenses, Registrations and Certifications:

Secondary School Teaching Certificate
Certification, Fluorescence Analyst
Certificate, Strike Mediation Training
Certificate, IBI Recombinant DNA Workshop

Citations in Biographical Works:

American Men and Women of Science
American Men and Women of Science, Physical and Biological Sciences
Book of Honor, American Biographical Institute
Community Leaders and Noteworthy Americans
Dictionary of International Biography
Directory of Environmental Scientists in Agriculture, CAST
Guide to Specialists on Toxic Substances, CIEI, UN Environment Program
Personalities of the West and Midwest
Who's Who in Frontier Science and Technology
Who's Who in Leading American Executives
Who's Who in the West
Who's Who in the Midwest
Who's Who Among Outstanding Americans
Who's Who in America
Who's Who in the World
Who's Who in the 20th Century

Awards and Honors:

1965: Idaho-Eastern Oregon Seed Association Outstanding Research Award
1979: "Letter of Commendation," Office of the Surgeon General, DOD, Washington, DC
1980: Dow Chemical, Pioneering Research Leadership Award
1987: The Joint Service Achievement medal, U.S. Dept. of Defense
1987: Vice President, Northcentral Division, American Phytopathological Society
1988: Defense Meritorious Service Medal, U.S. Dept. of Defense
1988: President, Northcentral Division, American Phytopathological Society
1989: The Meritorious Service Medal of the United States, U.S. Dept. of Defense
1993: Purdue Univ. Coop. Ext. Specialists Team Award (PUCESA)
1993: CAP Award, Indiana School Boards Association
1994: CAP-2 Award, Indiana School Boards Association
1995: CAP-3 Award, Indiana School Boards Association
1995: Retired, Colonel, Army of the United States
1996: Master Boardsman Award, Indiana School Boards Association
1996: Emeritus Member, American Phytopathological Society
1997: Honorary Professor, Ningxia Academy of Agricultural and Forestry Sciences, Ningxia, Peoples Republic of China
2000: Purdue University, Team Research Award (small grains improvement)
2006: Purdue University, Emeritus Professor of Plant Pathology Memberships and participation in academic, professional, and scholarly societies

Memberships in Academic, Professional, and Scholarly Societies (past or present):

Alpha Zeta
American Phytopathological Society
New Projects Committee, Utilization of Plant Pathologists in the Armed Forces
Soil Microbiology and Root Disease Committee, Biological Control Committee
Integrated Pest Management Committee, Office of International Programs, Diversity Committee
Steering Committee, Eastern Research Workers Conference on Root-Infecting Fungi
Crop Science Society of America
Steering Committee, Eastern Research Workers Conference on Root-infecting Fungi
Society of Sigma Xi
Northcentral Division, American Phytopathological Society Vice-President, then President
Indiana Academy of Science

International Society of Plant Pathologists (ISPP)

Society of Professionals in Dispute Resolution (SPIDR)

Western Society of Soil Science

Reviewer for Phytopathology, Plant Disease, Crop Science, J. Applied Agriculture, USDA-CSRES NRI Grants, USDA-SBIR Grants, BARD Grants, Canadian J. Plant Pathology, and other professional journals.

Cooperation and International Activities:

International cooperative research with scientists in Argentina, Australia, Brazil, Canada, China, Chile, Costa Rica, Denmark, Germany, Mexico, Russia, Taiwan, Tunesia, Turkey and U.K.

International cooperation with Dr. Robin Graham, University of Adelaide and Waite Institute, Adelaide, SA, Australia (take-all and Rhizoctonia diseases of wheat)

Dr. Percy Wong, NSW, Dept. of Agriculture, New South Wales, Australia (biological control)

Dr. Ivan Ortiz-Monasterio, CIMMYT, Mexico (improving nutrient efficiency in irrigated wheat)

Dr. C-Y Tsai, Head, Dept. of Botany, National Taiwan University, Taipei (nitrogen physiology and nutrient interactions)

Dr. Jose Magalhaes, EMBRAPA, Brasilia, Brazil (nutrient metabolism in agricultural crops)

Mr. Peng Yufa, Chinese Academy of Agricultural Science (biological and cultural disease control), Beijing, P.R.C.

Mr. Shen Ruiqing, Ningxia Academy of Agricultural and forestry Sciences, Yinchuan, Ningxia P.R.C. (disease management)

Mrs. Sheng Xiulan, Gansu Academy of Agricultural and Forestry Sciences, Lanzhou, Gansu, P.R.C. (Soilborne diseases)

Drs. Subaru Saiga and S. Kawai, Iwate University, Morioka, Japan (nutrient management)

Dr. Claudia Heppner, Belgium (Gaeumannomyces)

Cooperative Research with Scientists

Southern Regional Research Project S-269 (biological control and management of soilborne plant pathogens)

North Central Regional Research Project NC-125 (biological control of soilborne diseases)

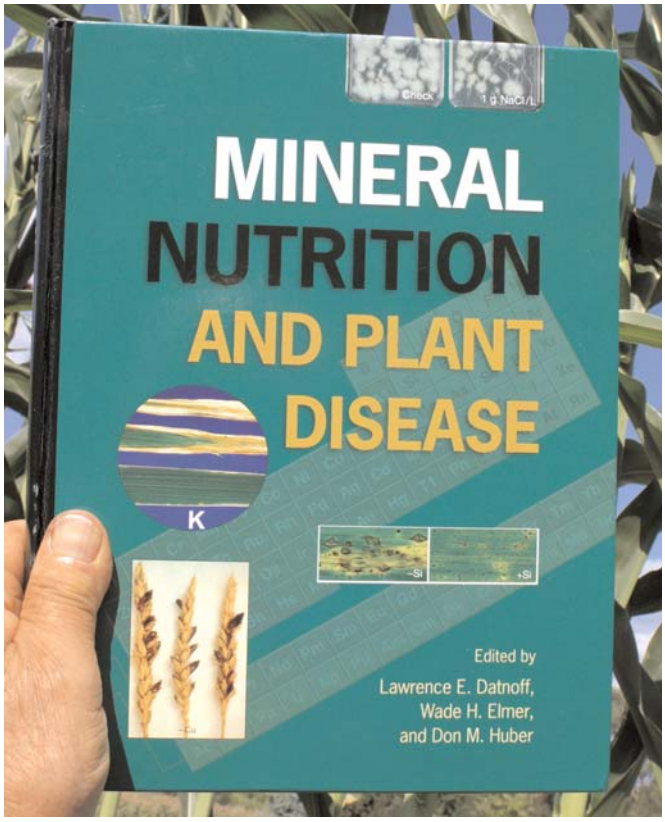
Dr. Larry Moore, Oregon State University, Corvallis, OR (Crown gall and mycorrhizae)

Dr. Fred Lytle, Department of Chemistry, Purdue University (Laser fluorometry for rapid detection and identification of microorganisms)

Dr. Alan Sutton, Animal Science Department, Purdue University (manure management)

Dr. Don Jones, Department of Agricultural Engineering, Purdue University (manure management)

Dr. Scott Abney, USDA-ARS Plant Pathologist, Purdue University (soilborne diseases of soybean and biological control)



Current Reviews for Academic Libraries (CHOICE) awarded this book, *Mineral Nutrition and Plant Disease*, its "*Outstanding Academic Title*" for 2008. CHOICE said "Outstanding Academic Titles are truly the 'best of the best.' Only a select group of publishers and authors are represented in such a list." Editors are Lawrence E. Datnoff, Wade H. Elmer and *Don M. Huber*.

Dr. Michael Hickman, USDA-ARS Weed Scientist, Purdue University (nutrient management)

Dr. James Allemon, Department of Civil Engineering, Purdue University (nitrogen management)

Dr. Herbert Ohm, Department of Agronomy, Purdue University (improved wheat disease control and production)

Invited International Lectures Presented In Australia, Brazil, Canada, China, Costa Rica, Denmark, Germany, Japan, Mexico, Taiwan

Publications:

As of 2011, Dr. Huber has authored or co-authored 115 journal articles, 35 Experiment Station Bulletins, 102 research abstracts, 51 book chapters and review articles, three books, and 84 special publications.

(See a comprehensive list below.)

Selected scientific publications

Huber, D.M. and T.S. Abney, 1986. *Soybean Allelopathy*

and Subsequent Cropping. J. Agron. & Crop Sci. 157:73-78.

Huber, D.M., H.L. Warren, and C.Y. Tsai. 1986. *Role of Nutrition in Stalk Rot. Solutions 30:26-30.*

Huber, D.M., J.E. Wagner, H.E.L. Nashaar, and L.W. Moore, 1986. *Interactions of a Peat Carrier and Potential Biological Control Agents. Phytopathology 76:1104-1105.*

Tsai, C.Y., D.M. Huber, H.L. Warren and C.L. Tsai, 1986. *Sink Regulation of Source Activity: Regulation by Nitrogen Utilization. Chapter 18. In: Regulation of Carbon and Nitrogen Reduction and Utilization in Maize. pp. 247-259. American Soc. Plant Physiol., Rockville, MD.*

Sutton, A.L., D.M. Huber, D.D. Jones, D.T. Kelly and D.H. Bache, 1986. *Use of Nitrification Inhibitors and Ammonia Enrichment with Swine Manure Applications. Applied Engineering in Agriculture. 2:179-185.*

Huber, D.M., T.S. Lee, M.A. Ross, and T.S. Abney, 1987. *Amelioration of Tan Spot of Wheat with Nitrogen. Plant Disease 71:49-50.*

Tsai, C.Y., D.M. Huber, H.L. Warren and L.A. Lyznik, 1987. *Corn Physiology and Genetics as they Interact under Nutrient Stress. In: R.D. Munson (ed). Physiology, Biochemistry and Chemistry Associated with Maximum Yield Corn. Potash and Phosphate Institute, Atlanta, GA. pp. 133-153.*

Huber, D.M. and N.S. Wilhelm, 1988. *The Role of Manganese in Disease Resistance. pp. 155-173. In: R.D. Graham, R.J. Hannam and N.C. Uren (eds). Manganese in Soils and Plants. Kluwer Academic Publishers; Dordrecht, Boston, London.*

Huber, D.M. 1989. *The Role of Nutrition in the Take-all Disease of Wheat and other Small Grains. pp. 46-74. In: A. Englehard (ed.) Soilborne Plant Pathogens: Management of Diseases with Macro and Microelements. APS Press, St. Paul, MN.*

Roseman, T.S. and D.M. Huber, 1989. *Influence of Gaeumannomyces graminis var. tritici on Manganese Oxidizing Bacteria in Wheat Rhizospheres. Phytopathology 79:1166-1167.*

Von Qualen, R.H., T.S. Abney, D.M. Huber, and M.M. Schreiber, 1989. *Effects of Rotation, Tillage and Fumigation on Premature Dying of Soybeans. Plant Disease 73:740-744.*

Huber, D.M., H. El-Nasshar, L.W. Moore, D.E. Mathre and J.E. Wagner, 1989. *Interaction Between a Peat Carrier and Bacterial Seed Treatments Evaluated for Biological Control of the Take-all Disease of Wheat (Triticum aestivum S.). Biol. Fert. Soils 8:166-171.*

Hughes, K.D., F.E. Lytle, T.S. Roseman and D.M. Huber, 1989. *Differentiation of Genetically Engineered Bacteria with Laser Based Aminopeptidase Profiling. Pittsburgh Conference of Analytical Chemistry and Applied Spectroscopy, Atlanta, GA, March 6-10. 1989:1025.*

Azimi, N., F.E. Lytle, D.M. Huber, J.E. Whitaker and R.P. Haugland, R.P. 1990. *Multiple Reagent*

Dr. Don Huber delivers dozens of presentations each year in the U.S. and worldwide. Most of them explain the connection between crop health and good plant nutrition — with special focus on the need to deal with rising problems linked to intensive use of glyphosate and genetically modified crops.

Aminopeptidase Profiling of Bacteria. Applied Spectroscopy 44:400-403.

Huber, D.M. 1990. *Fertilizers and Soilborne Diseases. Soil Use and Management. 6:168-173.*

Sutton, A.L., D.M. Huber, D.D. Jones, and D.T. Kelly, 1990. *Use of Nitrification Inhibitors with Summer Application of Swine Manure. Appl. Eng. Agric. 6:296-300.*

Sutton, A.L., D.M. Huber and D.D. Jones, 1990. *Strategies for Maximizing the Nutrient Utilization of Animal Wastes as a Fertilizer Resource. pp. 139-147. In: Agricultural and Food Processing Wastes. American Soc. Agricultural Eng. ASAE Pub. 05-90, St. Joseph, MI.*

Arnott, H.J., T.S.. Roseman, R.D. Graham and D.M. Huber, 1991. *An Experimental Study of Manganese Mineralization in the Take-all Fungus, Gaeumannomyces graminis. Mycological News 42:3.*

Huber, D.M. 1991. *The use of Fertilizers and Organic Amendments in the Control of Plant Disease. pp. 405-495. In: D. Pimentel (ed) Handbook of Pest Management in Agriculture. CRC press, Boca Raton, FL.*

Huber, D.M., L.J. Herr, E.P. Christmas and T.S. Roseman, 1991. *Crown Rot, a Serious Disease of Canola in the Midwest. Phytopathology 81:1186.*

Magalhaes, J.R. and D.M. Huber, 1991. *Response of Ammonium Assimilation Enzymes to Nitrogen Form Treatments in Different Plant Species. J. Plant Nutr. 14:175-185.*

Magalhaes, J.R. and D.M. Huber, 1991. *Free Ammonia, Free Amino Acids, and Enzyme Activity in Maize Tissue Treated with Methionine Sulfoximine. J. Plant Nutrition 14:883-895.*

Roseman, T.S., R.D. Graham, H.J. Arnott and D.M. Huber, 1991. *The Interaction of Temperature with Virulence and Manganese Oxidizing Potential in the epidemiology of Gaeumannomyces graminis. Phytopathology 81:1215.*

Tsai, C.L., D.M. Huber, H.L. Warren and C.Y. Tsai, 1991. *Effects of Cross-Pollination on Dry Matter Accumulation, Nutrient Partitioning and Grain Yield of Maize Hybrids Grown under Different Levels of N Fertility. J. Sci. Food Agric. 57:163-174.*

Tsai, C.Y., D.M. Huber, H.L. Warren and A. Lyznik, 1991. *Nitrogen Uptake and Redistribution During Maturation of Maize Hybrids. J. Sci. Food Agric. 57:175-187.*

Royer, M.H., W.M. Dowler D.M. and Huber, (eds.), 1991. *Major Diseases of the Tropics and Subtropics: Bananas, Cacao, Cassava. USDA-ARS Foreign Disease and Weed Science Laboratories, Frederick, MD.*

Huber, D.M. and R.D. Graham, 1992. *Techniques for Studying Nutrient-Disease Interactions. pp. 204-214. In: C.M. Rush and L.L. Singleton (eds) Methods for Research on Soilborne Phytopathogenic Fungi. APS Press, St. Paul, MN.*

Huber, D.M., R.E. Baird and T.S. McCay-Buis, 1992. *Environmental Conditions Associated with Rhizoctonia "Winter-kill" of Wheat in Indiana. Phytopathology 82:1114.*

Huber, D.M., E.P. Christmas, L.J. Herr, T.S. McCay-Buis and R. Baird, 1992. *Rhizoctonia Crown Rot of Canola in Indiana. Plant Disease 76:1251-1253.*

Magalhaes, J.R., D.M. Huber and C.Y. Tsai, 1992. *Evidence of Increased 15N-Ammonium Assimilation in Tomato Plants with Exogenous a-ketoglutarate. Plant Sci. 85:135-141.*

Tsai, C.Y., I. Dweikat, D.M. Huber and H.L. Warren, 1992. *Interrelationship of Nitrogen with Maize (zea mays) Grain Yield, Nitrogen use Efficiency and Grain Quality. J. Sci. Food Agric. 58:1-8.*

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A long and illustrious career

Here is a special tribute from a leading ag consulting firm, Ag Spectrum, which inducted Dr. Huber into the Ag Spectrum Hall of Fame in 2007. These excerpts are from an article published by Ag Spectrum in 2009.

One early ag researcher with whom Ag Spectrum collaborated was Dr. Don M. Huber, a plant pathologist at Purdue University.

The relationship endured over many years, and Huber's research contributions, as well as his valued speaking appearances at Ag Spectrum grower meetings, led to his induction into the company's Hall of Fame in 2007. Ag Spectrum Technical Director Cliff Ramsier has said, "Don is probably the smartest man I have ever known."

Ramsier adds, "Don has a passion for finding answers to complicated puzzles. He has the gifts, training and right set of filters through which he sees the world to arrive at proper conclusions His works will be put into practice on the farm for many years to come."

Needing to work his way through college, Huber took a part-time job as caretakeer for the Plant Pathology greenhouse. The department head asked him to assist with a graduate-level research project, asking, "Why does crop rotation influence crop disease?"

"I've spent over 50 years trying to answer that question," says Huber. "When you change one thing, you change many components."

The driving force behind Huber's work is his passion for knowledge. His mind never rests as he seeks solutions to crop disease challenges.

Huber discovered how specific crops cause changes in soil microflora. He has shown how sidedressing affects micronutrients such as manganese and iron, and which diseases are influenced by which micronutrients.

"Mineral nutrition plays an important role in plant defense mechanisms," says Ramsier. "Most plant pathology literature cites works by Don related to this issue."

Huber has been on the ground floor of developing new tools to measure nutrient availability and biological function related to pathology.

Most recently, Huber's findings regarding glyphosate's influence on disease susceptibility in crops have been especially important to agricultural producers.

Huber has been at the forefront of research on glyphosate's residual effects on wheat, corn, cotton, soybeans, potatoes, citrus and dozens of other crops.

Huber explains, "Glyphosate is the reason we are seeing a reemergence of diseases we thought we had controlled."

Huber has never been afraid to question accepted beliefs if he thought science proved otherwise.

"I was blacklisted by my own society my first year out of grad school because I challenged two major pathologists in the country," says Huber.

Ten years later, Huber was asked to write a review paper that summarized a decade's worth of information which had been stimulated by his initial hypothesis!