

## 2014 AOWC Awards for Distinguished Service to Oat Improvement



### Dr. Michael S. McMullen

Dr. Michael McMullen received his Bachelor's Degree from Illinois State University in 1969, his Master's Degree from Colorado State University in 1973, and his PhD. from the University of Minnesota in 1976. He was advised and mentored in oat research by both Dr. Deon Stuthman and Dr. Ron Phillips. Upon completion of his PhD, he joined the faculty at North Dakota State University as an oat breeder and teacher. During his teaching career, he has taught Cytogenetics, Plant Breeding, and Grain Grading to large numbers of undergraduate and graduate students, many of whom continued on in careers in plant science, and tell wonderful stories about Dr. McMullen's classes.

His plant breeding work has been extensive and highly prolific. He has released 27 oat cultivars to date, and has generated and developed extensive volumes of germplasm with multiple crown rust resistance genes that continue to be used by other oat breeders in several countries. He has also developed a considerable volume of oat germplasm with improved nutritional traits; in particular, some of the highest beta glucan lines available today. Michael is a well-known and highly respected speaker at many extension meetings, and is known for his "common sense" approach to oat production issues. His expertise and advice is sought out by many in both the public and private crop science and plant breeding arenas.

Besides his prolific oat breeding and teaching career, Dr. McMullen's accomplishments are extensive. He was an active member of the American Oat Association from 1984 to 1995, and, during this time, made many trips to Washington D.C. and other cities advocating and lobbying for USDA and state support of oat breeding. That important work has continued on since the American Oat Association merged with the North American Millers Association, and Michael continues to be a strong advocate for oat research. Michael has written over 50 publications and book chapters as author or co-author, and was the editor of the Oat Newsletter from 1984 to 1989. He has been a member of both the American Society of Agronomy and the Crop Science Society of America since 1970. He also holds a Plant Breeder certification from the Canadian Seed Growers Association. Michael has registered several patents on oat varieties, received plant variety protection certifications, and been granted Plant Breeder's Rights in both the U.S. and Canada.

Michael's career and accomplishments to date have been enviable, and highly respected by not only the oat industry, but also both the plant breeding and teaching communities. He is obviously highly deserving of being recognized with the "Distinguished Service Award of the American Oat Workers" in 2014. In his own words, Mike states that, "Most of all, I have enjoyed the relationships with other oat breeders, scientists, students and graduate students, interaction with growers, and the friendship of many people in the oat industry".



## Dr. Herbert W. Ohm

Herb was born in Albert Lea, Minnesota in 1945. His original intention was to teach, and so he attended the University of Minnesota, where he obtained a B.S. in Agricultural Education. The summer before he graduated, he was the Assistant County Agricultural Agent in Stearns County. He apparently saw the light, because he went to graduate school and, in June of 1969, he received an M.S. in Plant Breeding from North Dakota State University. He then received a Ph.D. in Plant Breeding and Genetics in December 1971 at Purdue University under Dr. Fred Patterson, one of the giants of small grains breeding. Herb tells the story that he arrived in West Lafayette on a Saturday during the height of the wheat breeding season. Fred had asked him to meet him at the Agronomy Research Farm when he arrived, and immediately put Herb to work for the rest of the day! The department clearly saw the promise in

Herb and, one month after completing his Ph.D. (January 1972), he became a newly hired Assistant Professor in the Agronomy Department at Purdue University. Herb overlapped with Dr. Patterson who retired in 1986, and they made a superb team. Herb quickly rose through the ranks to Professor in 1983 and became the Team Leader of the Purdue Interdisciplinary Wheat and Oat Genetics and Breeding Program in 1981. He spent the next 42 years (1972-2014) at Purdue, except for an 8-month stint as Pioneer Station manager in Hutchinson, Kansas, in 1980 and two years as the Team Leader for the Purdue University/USAID Farming Systems Research Project in West Africa from 8/1983 - 8/1985. He also served as interim Department Head from 2009-2010.

The Purdue oat program, which began in 1940, resulted in outstanding improvements in lodging resistance, disease resistance, and adaptation to the warm temperature conditions in Indiana. After 1954, six spring oat varieties were distributed, including Clintland, Bentland, Newton, Putnam, Clintland 60, and Putnam 61. These varieties at that time made up a substantial part of the oats grown in the North Central region. Herb was diligent about continuing this excellence and released numerous oat varieties throughout his tenure. Oat varieties developed by Dr. Ohm are grown on essentially all the oat acreage in Indiana and are grown widely throughout the upper Midwest and Ontario, Canada. Essentially all oat improvement research programs in the upper U.S. and Canada use Purdue-developed oat varieties as parental donors for yellow dwarf virus resistance. Two of an array of lines that Herb released that I am sure you will recognize are Classic, released in 1996, widely grown with a high level of resistance to yellow dwarf viruses and Jay, released in 1998, that is widely adapted to the upper Midwest, northeast U.S., and Ontario, Canada, and has his signature resistance to yellow dwarf viruses and crown rust. The last public variety he released in the 2000s, Excel, continues to be grown on a fairly substantial acreage all the way into Canada. The last lines he was working on just before his stroke are quintessentially Herb. He was always looking to bring in new sources of alleles for important traits, in this case using *A. strigosa* as the donor parent for BYDV resistance. Herb was also a key partner in the oat SNP project that has clearly advanced the tools that can be applied to oat improvement and represents a key advance in how SNP technology can be developed and used in non-sequenced genomes.

Herb obtained over \$4 M in research funding from diverse funding sources. One of these key sources for many years has been Quaker Oats, which provided long term sustainable funding that enabled him to have a simply outstanding oat breeding program. The evidence of this funding and prolific program is

the array of public and licensed wheat and oat cultivars released by Herb, which have generated well over \$4 million in research and licensing fees on seed.

As you know, Herb has had a very distinguished career in many aspects of teaching, research, and national leadership. Dr. Ohm served as academic advisor and provided research assistantship support for 50 graduate students, seventeen of whom are from nine countries outside of the U.S.A. His former students are developing successful careers in academia and all major seed companies in the U.S.A. and other countries, and the seed industry in Indiana. He counseled and provided training and work experience for over 60 undergraduate students in plant genetics, plant breeding, and other areas of agronomy. Dr. Ohm co-authored one book, five chapters in books, 135+ refereed journal articles in prestigious international journals, 131+ abstracts of oral and poster presentations, and 26 research bulletins. Herb retired with a flourish - finishing up eight graduate students.

Dr. Ohm is widely recognized nationally and internationally for his innovative and productive genetics and breeding research and instruction, embracing and applying new developments in molecular genetics to carry out plant breeding more efficiently, as evidenced by his numerous lectures, consultations, and other invited activities. Dr. Ohm is exceptionally, highly regarded in the seed industry throughout the Midwest for his research accomplishments and extensive interactions with these important client groups. He has been a very active member of the oat community over the years, as shown by the elected and appointed positions he has held:

- Chairman, Research Committee American Oat Association, 1990-94
- Chairman, National Oat Improvement Council, 1990-94
- Chairman, American Oat Workers, 1986-1990 (Canada, U.S.A., Mexico, South America)
- Oat Legislative Committee, American Oat Association, 1986-1994
- Member, CSSA C-852, Crop Science Oat Registration, 1999-present
- CSSA: Oat Monograph Committee, 1996-99
- Oat Crop Registration Committee, American Society of Agronomy, 1989-present

In addition to these service activities, he has been the recipient of numerous awards of which I will highlight just a few that I think will resonate with this audience:

- Distinguished Professor, 2004 – *The highest award given by Purdue University*
- Public Plant Breeding Award, 2010 – National Council of Commercial Plant Breeders
- Fellow, American Association for the Advancement of Science (AAAS), 2001
- Agronomic Achievement Award-Crops, American Society of Agronomy, 1994
- Fellow, American Society of Agronomy, 1991
- Fellow, Crop Science Society of America, 1990
- Crops and Soils Merit Award, Indiana Crop Improvement Association, 1988
- Recognition by The National Council of Commercial Plant Breeders for outstanding contributions in planning a plant breeding workshop, Purdue University, 1983



## Professor Luiz Carlos Federizzi

Dr. Luiz Carlos Federizzi grew up in Marau, South Brazil, and received his degree in Agronomy in 1974 from Federal University of Santa Maria. From 1975 to 1978, he worked as a wheat breeder at the Experimental Station of Julio de Castilho, a Governmental research institution of Rio Grande do Sul State. From 1978 until his retirement in 2013, he worked as a professor of plant breeding at the Federal University of Rio Grande do Sul (UFRGS), in Porto Alegre. In 1979, he received his MS in Plant Science from UFRGS and, in 1986, his PhD in Genetics and Plant Breeding from the University of California, Davis. In 1994, he became Full Professor. In 1997, he spent a one year sabbatical period at the University of Minnesota.

During his 35 years at UFRGS, as the leader of the Oat Breeding Program, Dr. Federizzi's research focused on small grains, mainly oats. This very successful program released 32 oat varieties adapted to South Brazilian environments, many of them becoming the most popular amongst growers, helping to change the dependence of the country from being an oat importer to self-sufficiency. Such achievements have led Dr. Federizzi to help other oat breeding programs in Brazil and abroad as well, such as in Argentina and India. His research also concentrated on unraveling the genetic basis of the main agronomic traits involved in the adaptation of small grains to subtropical environments. More recently, Dr. Federizzi has also engaged in the research and analysis of agro-industrial chains and technologies of productive structures.

His academic activities included teaching a number of courses, such as evolution of cultivated plants, theory of selection, resistance to plant diseases, topics in agribusiness, physiogenetics, plant breeding and seminars for both graduate and undergraduate students. He was also a member of many internal and external committees, such as Science and Agribusiness, the University Academic Senate, the Rio Grande do Sul State Foundation for Science (FAPERGS), the Brazilian Council for Scientific and Technological Development (CNPq) and the National Coordination for Improvement of Academic People (CAPES). He still serves on the last two committees. During his career, he authored or co-authored more than 135 peer-reviewed scientific papers, sixteen book chapters, hundreds of abstracts and short communications and advised 30 MS and 17 PhD students.

Dr. Federizzi was also involved in administration, as the coordinator of the Post-Graduate Program in Plant Science (1996-1997), Head of the Field Crops Department (1988-2000), and Director (2004) and Vice-Director (2005 to present) of the Center of Interdisciplinary Studies in Agribusiness. In extension, he advised many growers and companies about oat growing and usage. Dr. Federizzi received a number of awards: in 1988, "The Future of the Land" from the Commerce Newspaper; in 2001, the "Outstanding Researcher" from FAPERGS; in 2002, the "Ceres Trophy" from the Federation of Agriculture of Rio Grande do Sul State; and, in 2011, the "Prof. Ernesto Paterniani Award" from the Brazilian Plant Breeding Society. For his contribution to scientific and technological research and for the development of qualified human resources for research in Brazil, he has been granted the highest level of the Productivity Research Fellowship from CNPq. Despite being retired, Dr. Federizzi still works at the University as an invited researcher, showing the same enthusiasm as when he started.