

From the Oat Newsletter, volume 50, 2006:

Dr. David M. Peterson  
Award for Distinguished Service to Oat Improvement



We present Dr. David M. Peterson the 2006 Distinguished Service to Oat Improvement Award. Dr. Peterson has been a central figure in the oat improvement research community for over three decades as a highly respected colleague and recognized authority in oat grain composition, oat plant and grain development, nutritional value in human diets and animal feed, and genetic and environmental influences on it.

David Peterson began his career in oat research in 1971 as a USDA-ARS Plant Physiologist with the Oat Quality Laboratory, which had been established through a cooperative agreement with the Agronomy Department of the University of Wisconsin, Madison, in 1970. Prior to that appointment he had worked a short while in the agro-chemical industry after receiving a B.S. degree at the University of California, Davis, an M.S. at the University of Illinois and his Ph.D. at Harvard University.

Dr. Peterson's assignment in the Oat Quality Laboratory was to do research to improve the quality of oats for human consumption, initially with an emphasis on protein quality and quantity. Dr. Peterson was widely recognized for his early research which first demonstrated the similarity in structure between oat storage proteins and those of legume seeds. He showed that this unique aspect of oat storage protein was responsible for the superior amino acid balance of oats. He then led a team that found cholesterol inhibitors in barley that were identified as tocotrienols, which were also present in oats and other cereals. The mechanism of inhibition was different than that of the soluble fiber, beta-glucan, which is prominent in oat bran.

Dr. Peterson's more recent research was to characterize the antioxidant compounds that are present in oats. He showed that a unique class of compounds called avenanthramides shows antioxidant activity by in vitro tests and also investigated, with a collaborator in Sweden, the possible role of avenanthramides in the resistance of oat to fungal diseases.

Many oat workers know Dr. Peterson well through his work in cooperatively conducting and supporting oat quality genetic improvement efforts. Publications either by Dr. Peterson or with colleagues described the roles of genotype, environment, and genotype-by-environment interactions on oat grain protein, oil, beta-glucan, and antioxidant component levels. In addition his lab provided assays for entries from the National Oat Collection, the regional Uniform Early and Midseason Oat Nurseries, and various breeders' materials to identify germplasm elite in content for grain quality components.

In 1983 Dr. Peterson was appointed Research Leader of the USDA-ARS Cereal Crops Research Unit at Madison, whose function includes evaluating and improving malting quality in barley, as well as oat quality research. Under his leadership the unit expanded from four to eight scientists, and the Federal budget support more than tripled. In 2003 and 2004, Dr. Peterson and his staff worked with architectural firms to plan a new 34,000 square foot laboratory and office facility on the Madison campus. Since his retirement in 2004 Dr. Peterson has remained active as an ARS Collaborator and Emeritus Professor at the University of Wisconsin and is enjoying the satisfaction of seeing the construction of this new Cereal Crops Laboratory near completion.

During his career Dr. Peterson successfully directed seven M.S. and three Ph.D. students, who have gone on to careers in academia and industry. He authored 88 research publications including several book chapters and served on the editorial board of several professional journals. He was elected a Fellow of AAAS in 1986. His numerous contributions to science and particularly to oat research make Dr. Peterson a most worthy recipient of this award for distinguished service to oat improvement.