

Robert Alexander McIntosh

These proceedings celebrate the career contributions of R. A. (Bob) McIntosh



Robert Alexander McIntosh was born in Gloucester, New South Wales, Australia, and grew up on a dairy farm. He was educated at the University of Sydney where he received a B.Sc.Agr. in 1960, an M.Sc.Agr. in 1963 and a Ph.D. in 1969. His Ph.D. focused on the genetics and cytogenetics of flag smut resistance in wheat.

Prof McIntosh spent his entire professional career at the University of Sydney, initially as a Professional Officer from 1960 to 1963, and subsequently as a Research Fellow from 1963 to 1973 and a Senior Research Fellow from 1973 to 1980. He was appointed Director of Rust Research (level of Associate Professor) in 1980, and in 1993 he was promoted to a Personal Professorship of Cereal Genetics and Cytogenetics. He retired in July 2000.

Following his Ph.D. studies on flag smut, Prof McIntosh dedicated his entire career to the genetic control of cereal rust diseases. He has had a very distinguished career and is recognized for his international reputation in research on rust diseases of cereals. Some of his major achievements include contributions to the collection of aneuploid stocks of Chinese Spring wheat, chromosome location and genetic linkage studies in wheat, the naming of 7 genes for resistance to

leaf rust, 14 genes for resistance to stem rust and 3 genes for resistance to stripe rust. Since 1968, he has co-ordinated and published the internationally accepted catalogue of genetic nomenclature of wheat. He introduced the method of using monotelodisomic heterozygotes for telocentric mapping. He also designed and conducted appropriate mutational analyses that demonstrated that one gene conferred resistance to pathogens that incited two different diseases. From his genetic studies, he developed white seeded derivatives from red seeded alien translocation stocks enabling the commercial exploitation of the *Lr24* and *Sr24* resistance genes in a large range of successful Australian white seeded wheat cultivars. Earlier derivatives carried a gene for red seededness in the alien chromosome segment. His research also led to the identification of the initial pathotype of *Puccinia striiformis* f. sp. *tritici* following its introduction into Australia in 1979, and the identification of the pathotypes of *P. graminis* f. sp. *tritici* that attack triticale in Australia. He showed that stem rust resistance in triticale was genetically vulnerable and that the causal pathotypes were of no immediate threat to wheat cultivars. His studies have produced approximately 130 publications.

During his career, Bob presented invited papers and delivered keynote addresses at approximately 25 international congresses and meetings in numerous countries in Europe, Asia, North America and Australia. He served as advisor and consultant for research programs at institutions in the US and South Africa, and he was invited as a guest lecturer at universities and research institutes in the US, China and Mexico. He currently serves on the Editorial Panels of Plant Breeding (Germany), Euphytica (The Netherlands), Cereal Research Communications (Hungary) and Wheat Information Service (Japan). A long-standing member of APS, he organized and chaired a symposium on the genetic control of disease resistance at the 6th International Congress of Plant Pathology, Kyoto, Japan, and was made a Fellow of the society in 2001.

Bob was very actively involved in teaching, supervising some 11 graduate students and giving undergraduate lectures to students in Agronomy, Plant Breeding and Plant Pathology. He received several Awards for his contributions to agricultural science including the Farrer Memorial Medal that commemorates the work of pioneer wheat breeder William Farrer, in 1976, and the Medal of the Australian Institute of Agricultural Science in 1987, and was elected a Fellow of the Australian Institute of Agricultural Sciences (1988) and Fellow of the Australian Academy of Science (1993), and in 2000–2001 was a visiting fellow at Kyoto University.

Research undertaken and supervised by Prof McIntosh has had continuous support from the Grains Research and Development Corporation of Australia. In addition to the studies of genetics and cytogenetics of rust resistance, projects under his

direction or involvement have included cereal rust pathogenicity surveys conducted as part of Australian National Cereal Rust Control Program, international collaborative wheat rust projects with India and Pakistan, a global surveillance of the wheat stripe rust pathogen in collaboration with CIMMYT and ICARDA, and recently, development of a component of an Australian collaborative project on wheat breeding in Sichuan, China.

A hallmark of Bob's career was his dedication to scholarly research and the application of this research in achieving stable rust resistance in cereals. Throughout his 40 year career, Bob proved himself to be a dedicated and enthusiastic teacher. The impact of his dedicated work cannot be underestimated from

both Australian and international perspectives. His enthusiasm for cereal rust research continues in retirement, which we all hope will be long and productive.

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