



Meet an MPRINT Scientist



Bill Muir

Bill earned B.S. and M.S. degrees from the University of Illinois and a Ph.D. degree from Purdue University. After serving on the faculty of Statistics and Agriculture at the University of Kentucky, Bill returned to Purdue as a faculty member in 1981. His research is in population/quantitative genetics, and he and his laboratory colleagues work at the interface of molecular and quantitative genetics as applied to natural and artificial selection in insects, fish, and poultry.

Bill believes that the development of undesirable genetic traits in insect and nematode pest populations can severely affect our ability to efficiently maintain pest numbers below economic thresholds and can prevent the implementation of truly sustainable IPM programs. As the use of transgenic organisms increases, he believes due concern must be given to understanding possible ecological hazards that attend the release of such organisms into nature, including possible outcomes of transgenic traits that affect some aspect of mating or reproduction.

He has found that, in some cases, release of a few transgenic individuals could result in local extinction of the species—a type of extinction he has named the “Trojan gene effect.” Bill has worked with MPRINT’s Jeff Stuart on genetics of the model insect, *Tribolium castaneum*, including the identification of polymorphisms identified by a repetitive DNA element, linkage between DNA fingerprinting and pupal weight, and the effect of directional selection on random genetic drift.

Some MPRINT Science

Muir, W. M. and D. Stick. (1998) Relative advantage of combining genes with major effects in breeding programs: simulation results. Proc. 6th World Congress of Genetics Applied to Live-stock Breeding. 26:357-360.

Muir, W. M. (1997) Candidate gene selection. Symposium: Critical Topics in Animal Sciences. Animal Sciences 3:79-91.

Stuart, J. J., M. J. DeGortari, P. S. Hall, M. E. Maxwell, G. Mocelin, S. J. Brown, and W. M. Muir. (1996) Useful DNA polymorphisms are identified by snapback, a med-repetitive element in *Tribolium castaneum*. Genome 39:568-578.



Production of transgenics through microinjection

Personal MPRINT

Bill enjoys woodworking and sailing, and he has done the cabinetry in the three sailboats he has built, the largest of which is a 26' McGregor.