

## **Shur Gain Award for Excellence in Nutrition and Meat Science**

### **Ming Fan**

This award is presented to a member of the Canadian Society of Animal Science to recognize the achievements of new members of the research community. Individuals who have demonstrated excellence in research in any area of Animal or Poultry Science, and who have held their PhD for a period of not greater than seven years are eligible. This award is sponsored by Pfizer Canada Inc. (Animal Health).

Dr. Fan is currently an assistant professor of nutritional ecology at the University of Guelph. He obtained his BSc in Animal Science at Xinjiang Agricultural University in 1985 and MSc in Monogastric Nutrition at Northeast Agricultural University in 1988 in China. He then obtained his PhD in Animal Nutrition at the University of Alberta in 1994.

Dr. Fan has made significant contributions and impact in swine nutrition, digestive physiology and nutrient metabolism in his relatively short research career. He has developed and systematically evaluated the direct, difference and regression methods for the determination of ileal amino acid digestibility in different types of feedstuffs for pigs. He has also critically investigated methodological aspects of measuring endogenous amino acid recovery from the distal ileum by regression analysis methods and factors responsible for the variability of ileal amino acid digestibility within feedstuffs in pigs. The fundamental nature of these studies has made significant progress in amino acid nutrition research, particularly in swine. The results and parameters published from these studies have been widely utilized by the feed industry.

Through basic research with the pig model, Dr. Fan contributed to our understanding on animal biology. He has examined the mechanisms of transcellular L-glutamine transport across enterocyte brush border membrane and demonstrated the isoenzyme expression of brush border membrane-bound alkaline phosphatase in different segments of porcine small intestine with kinetic analysis. By using the membrane vesicle approach, his studies have revealed mechanisms of anti-nutritive effects of feed associated tannins and legume lectins on digestive utilization of dietary proteins that are effective via direct inhibitory actions on functions of enterocyte brush border membrane-bound hydrolases and amino acid transporters. Furthermore his research has established a procedure of sequential isolation of enterocytes and preparation of cell membranes along the intestinal crypt-villus axis in the pig. This is a unique in vivo model that will facilitate the investigation of enterocyte proliferation, differentiation and functional expression in response to dietary and physiological conditions.

Since his appointment to the University of Guelph Dr. Fan has been vigorously developing active research on the development of effective strategies for controlling the output of nitrogen, phosphorus, and volatile compounds in swine production, in close collaboration with the swine industry.

Dr. Fan has authored and co-authored one book chapter and over 20 scientific journal publications, 30 abstracts and 15 articles in conference proceedings.

Dr. Fan's impressive career to date resulted in his nomination for the Young Scientist Award by Drs Gibbins and Hacker. The Canadian Society of Animal Science is pleased to recognize Dr. Ming Fan's accomplishments by presenting him with the 2001 Young Scientist Award.