

From: [Plant breeding activities and graduate students at TAMU](#) on behalf of [C. Wayne Smith](#)
To: TAMU-PLANTBREEDING@LISTSERV.TAMU.EDU
Subject: November 2009 Plant Breeding Bulletin
Date: Monday, November 09, 2009 10:06:50 AM
Attachments: [Plant Breeding Bulletin November 09.pdf](#)
[C. Wayne Smith2.vcf](#)

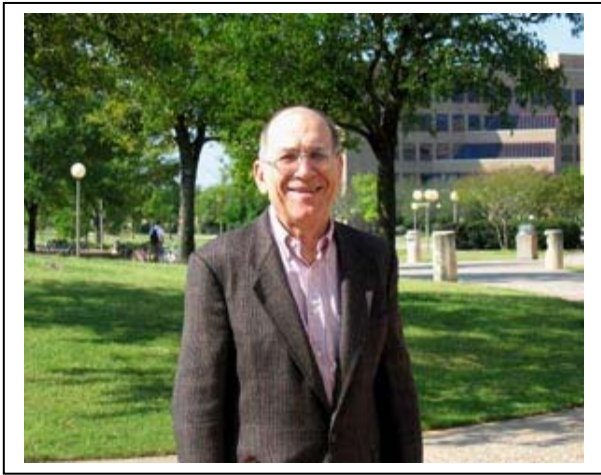
Attached is the November 2009 Plant Breeding Bulletin highlighting Dr. Lloyd Rooney who has been a part of our grain improvement program in Soil and Crop Sciences and AgriLife Research for the past 44 years. I hope that you enjoy learning more about Lloyd's program and accomplishments.

Regards,

Wayne

C. Wayne Smith
Professor, Cotton Breeding
Associate Department Head
Department of Soil and Crop Sciences
2474 TAMU
Texas A&M University
College Station, TX 77843-2474
979.845.3450
cwsmith@tamu.edu

TEXAS A&M PLANT BREEDING
November 2009



Dr. Lloyd Rooney has been a vital part of our wheat and sorghum breeding programs for 44 years. His expertise in determining food and feed quality attributes of sorghum, corn, wheat, and pearl millet have been instrumental in the development of large numbers of wheat varieties, sorghum lines and hybrids, and corn hybrids with improved processing quality for alkaline

cooking and dry milling. He has collaborated with a large number of colleagues domestically and internationally.

Lloyd's research interests include cereal improvement through genetics as a collaborator with Texas AgriLife Research plant breeders, processing of feed and food products, food and feed quality attributes, and understanding physiological mechanisms that influence cereal quality. Lloyd's research group has used light fluorescence, scanning electron microscopy (SEM), and environmental scanning electron microscopy (ESEM) for analyzing food microstructure as affected by process modifications for a variety of products and processes including pretzels, tortilla chips, extruded snacks, popped and puffed products and ready-to-eat breakfast foods.

Lloyd's work with breeders includes evaluation of wheat lines for bread and tortilla using small-scale tests of preliminary and advanced genotypes. The most promising lines are tested further in USDA-ARS testing. Sorghum nutritional value, composition, and processing properties for food, feed, and industrial processing has been extensively evaluated in collaborative research with sorghum improvement programs around the world. He pioneered methods for evaluation of processing qualities of grains that have been used to develop grains with improved food properties involving some unique phytochemicals that are important for human health.

His group has documented that special sorghums have higher levels of antioxidants than blueberries and produce healthy products with natural dark color and increased dietary fiber. Some of these special sorghums have high levels of flavanones, flavones, 3-deoxyanthocyanins and condensed tannins.

Lloyd has been a major player in the INTSORMIL CRSP since its inception in 1979. He has provided expertise in developing methods to evaluate the processing quality of grains that have been applied in sorghum and millet breeding programs from India to Africa and Central America. His efforts in improving food processing properties of sorghum and millets led to profitable value-added processed food products for urban consumers. He has traveled extensively in sorghum, maize and millet consuming areas of the world and has many former students in those areas.

Dr. Rooney's graduate level courses provide an in-depth understanding of chemical and biochemical properties of cereals and prepare students for academic, industry, or government sector careers. Lloyd has mentored 83 MS and 44 PhD students during his lustrous career. "Our best legacy is our former graduate students located around the world interacting with breeders, geneticists, biotechnologists, and others to improve crop quality."

His teaching reaches beyond the classroom and graduate student guidance through workshops, seminars and publications to transfer useful information. Extensive collaboration with Professor Taylor and others at the University of Pretoria occurs in the area of graduate training and related items. Collaborative efforts continue with Dr. Serna-Saldivar at ITESM in Monterrey Mexico.

He is an international member of the Mexican Academy of Sciences because of his group's research on corn nixtamalization and tortilla quality. This work was partially funded by the Snack Food Association (SFA) and the Tortilla Industry Association (TIA). Prior to TIA, Dr.

Rooney's Cereal Quality Lab hosted three workshops on Mexican Food Ingredients which emphasized corn and flour tortilla quality. Lloyd has co-edited a Snack Foods Processing book, edited an SFA Corn Quality Assurance Manual for the Snack Foods Association, edited several workshop proceedings, and has written several book chapters on sorghum quality.

Other areas of activity include troubleshooting for causes of product defects and changes during processing that affect structure and product quality. This includes extrusion, flaking, micronizing, and other processes. The Cereal Quality Lab pioneered in understanding the process of nixtamalization to produce tortillas and chips from maize and sorghum.

Collaboratively with the late Dr. Ralph Waniska, fundamental understanding of flour tortilla production and its chemistry was developed at Texas A&M. Factors affecting the texture and staling of tortillas were documented and additives to prevent staling were evaluated. Methods of evaluating food corn quality were devised which led breeders to develop hybrids with improved snack food processing quality. Improved methods were developed for dry masa evaluation involving industrial in-plant trials, pilot-plant research, and sensory panels determined how corn properties affect its processing.

Lloyd is an integral part of our plant improvement program at Texas A&M. You can find additional information at <http://soilcrop.tamu.edu>.

Monsanto supported PhD Graduate Assistantships:

Texas A&M University Department of Soil and Crop Sciences and Monsanto announces the availability of Monsanto Ph.D. Graduate Assistantships in Plant Breeding. Applicants must have earned a minimum 3.5 GPA on their M.S. course work, demonstrated an aptitude for research, and meet all other requirements for admission to Texas A&M, including completion of the GRE. Successful candidates will be required to register for nine hours of course work each fall and spring semester and six hours during the summer. Annualized salary is \$ 24,000, all tuition and required fees are paid by the assistantship, and group health insurance is available. Dissertation research will be in the area of crop improvement through the

application of breeding and genetics. Additional information and application protocol can be found at <http://soilcrop.tamu.edu> or by contacting Dr. Wayne Smith, Soil and Crop Sciences, 2474 Texas A&M University, College Station, TX 77843-2474, (979-845-3450 or cwsmith@tamu.edu).

Please direct comments concerning this bulletin to Wayne Smith, cwsmith@tamu.edu or 979.845.3450.