

**THE
BEAN IMPROVEMENT COOPERATIVE**



AWARDS PROGRAM

Radisson Hotel
Fargo, ND
November 5, 2019

THE BEAN IMPROVEMENT COOPERATIVE

Proudly Presents the

Frazier - Zaumeyer Distinguished Lectureship

to

James Beaver

Professor

Dept. of Agroenvironmental Sciences, Univ. of Puerto Rico

Mayagüez, Puerto Rico

&

Juan Carlos Rosas

Emeritus Professor

Zamorano University, Honduras

The **Frazier - Zaumeyer Distinguished Lectureship** was established in 2001 to recognize and honor a distinguished colleague who will present the keynote opening address at the biennial BIC meeting. The individual selected will have made outstanding and pioneering contributions to science that led to the advance of bean research. The Lecture will focus on current topics relevant to the BIC membership. The Lectureship is distinct from the other BIC career Awards such as the Distinguished Achievement and Meritorious Service Awards. Holders of these awards are not excluded from being awarded the Frazier-Zaumeyer Distinguished Lectureship. The name for the Lectureship honors the original BIC founder members, the late William A. 'Tex' Frazier, distinguished bean breeder and the late William 'Bill' Zaumeyer an equally distinguished bean pathologist. Dr. Tex Frazier working at Oregon State University is recognized for his pioneering work in developing the famous Bush Blue Lake snap bean and related germplasm. Dr. Bill Zaumeyer, USDA-ARS is recognized for his outstanding efforts in bean pathology.

JAMES BEAVER

Dr. James Beaver was born in Nobelville, Indiana, completed his B.S. at Purdue University, and his Masters and PhD at the U. of Illinois on soybean. He served as a Peace Corps volunteer in Brazil and fully integrated the focus of service in his career as a professor and plant breeder at the University of Puerto Rico starting in 1988, along with his wife Dr. Linda Beaver, a squash breeder and educator.

Dr. Beaver's remarkable contributions to common bean breeding have resulted in synergistic advances in disease, abiotic and insect resistance in cultivars throughout the Caribbean and Central America, resulting in a total of over 50 released cultivars and germplasms. BGYMV is a critical constraint to common bean production in the Caribbean and Central America, and was a focus of his early efforts, followed by the release of multiple virus resistant cultivars, combining BGYMV, BCMV, and BCMNV resistance. His methodical approach to pyramiding resistance genes through use of a broad diversity of germplasm, developing and applying existing conventional screening techniques, and advancing and integrating marker assisted selection, has resulted in multiple disease and abiotic stress resistant cultivars that have brought increased food security to the region. Recent collaborative releases such as 'Sankara' in Haiti, 'Bella' and 'Beniquez' in Puerto Rico, and 'MEN 2201-64 ML' in Guatemala, represent great advances in pyramiding multiple disease resistances such as BCMV, BCMNV, BGYMV, CBB, rust, ashy stem blight and web blight, as well as heat, drought and low fertility tolerance. His collaboration with Dr. Juan Carlos Rosas has resulted in cultivars with some of the broadest and most durable genetic resistance available that are key genetic resources for other production zones.

Through the Master's degree program at the U. of Puerto Rico, Dr. Beaver trained over 50 scientists who are now in key faculty, industry and government positions internationally, with many serving and contributing to the common bean research community. The training of new scientists that returned to their National institutions helped to foster long-term collaborations with National Programs and led to the development of active plant breeding programs. Through

collaboration, Dr. Beaver has provided innovative leadership in technology transfer including the development of a secure seed multiplication system for Haiti. Dr. Beaver worked closely with the National Seed Service of Haiti and collaborators in the development and release of 'Sankara', a broadly adapted and multiple virus resistant black bean cultivar. Considering the susceptibility of the seed sector to natural disasters, he developed an Idaho-based seed production and dissemination system that resulted in Idaho-grown certified 'Sankara' seed distribution to Haiti following Hurricane Matthew in 2016.

In addition to the genetic diversity available within common bean, Dr. Beaver pursued the use bruchid resistance from tepary bean (*P. acutifolius*) using germplasm developed from Oregon State University and Sokoine University in Tanzania. This seminal work on bruchid resistance is a game changing post-harvest achievement as it alleviates rapid degradation of seed and grain quality in the tropics and subtropics, particularly affecting poor farmers. The germplasm developed from these efforts, AO-1012-29-3-3A, represent the first release, while Dr. Beaver continues to introgress this resistance into additional seed classes, pyramided with multiple disease resistance.

The impact of Dr. Beaver's scholarship has resulted in the publication of over 130 refereed journal papers. In addition, his regional approach to breeding, collaboration, and training has resulted in long-term, substantial, and broad impact in the knowledge-base in the Caribbean and Central America, and more recently in Sub-Saharan Africa. Among his awards, Dr. Beaver (and Dr. Rosas) received the 2017 Board for International Food and Agricultural Development (BIFAD) Scientific Award for Excellence in a Feed the Future Innovation Lab recognizing the impact of their collaborative contributions, the 2015 Certificate of Recognition from the House of Representatives of the Commonwealth of Puerto Rico for Bean Research Contributions, and the Bean Improvement Cooperative's Meritorious and Distinguished Achievement Awards. He was also named a Fellow of the Crop Science Society of America in 2011.

JUAN CARLOS ROSAS

Dr. Juan Carlos Rosas is an emeritus professor and bean breeder at the Zamorano University in Honduras and has a long record of achievements that have contributed to agricultural development throughout Latin America. Born in Peru, Dr. Rosas obtained his Agronomy title from National Agrarian Univ. La Molina in Lima, Peru. After graduation, he worked as Research Assistant at the Agricultural Research Institute in Peru and then in the Bean program at CIAT. Then he moved to the U.S. and obtained both his M.S. and PhD in Plant Breeding and Plant Genetics from University of Wisconsin- Madison.

Dr. Rosas is a leader for bean research in Central America and the Caribbean (CA/C). He coordinates the evaluation of small red and black bean regional trials that include the most promising bean breeding lines from Zamorano, CIAT and Central American and Caribbean breeding programs. Dr. Rosas participated in the development and release of more than 70 cultivars with enhanced levels of resistance to diseases, abiotic stresses, nutritional value, and biological nitrogen fixation. The disease resistant and heat tolerant cultivar Amadeus 77 has been the most popular small red bean planted in Central America. Other important varieties include Tio Canela 75, CENTA Pipil, CENTA EAC, ICTA Sayaxché, INTA Centro Sur, and XRAV 40-4. It is estimated that ~200,000 small-scale bean producers in CA/C currently plant bean cultivars developed by Dr. Rosas' bean breeding program. He has employed modern breeding methods such as marker-assisted selection, controlled disease/pest evaluation methods, and precision soil fertility treatment to accelerate his breeding efforts and for agronomic and genetic elucidation of these traits. He has author/co-authored more than 100 refereed and non-refereed publications and is an active participant in the annual meetings of the PCCMCA, which brings together scientists from CA/C and Mexico. As a professor at Zamorano, Dr. Rosas has served as academic mentor for more than 80 students. Dr. Rosas has also contributed to institutional capacity building and strengthening by organizing numerous workshops for agronomists from CA/C covering a wide array of topics. In recognition of his contributions to teaching and research, Dr. Rosas received the 2014 Gamma Sigma Delta Distinguished

Achievement in Agriculture Award. Even a teaching auditorium for 200 students at Zamorano was named in his honor. He works with NGOs and farmer associations to deliver improved bean cultivars and Rhizobium inoculant. He uses participatory plant breeding techniques to improve local landraces and develop locally adapted cultivars, allowing many local communities in Central America to produce and store high-quality bean seed, which has led to improved food security.

In recognition of his contributions to bean research, Dr. Rosas has received both the Meritorious and Distinguished Achievement Awards from the BIC. More recently, Dr. Rosas (along with Dr. James Beaver) was the recipient of the 2017 Board for International Food and Agricultural Development (BIFAD) Scientific Award for Excellence in a Feed the Future Innovation Lab recognizing the impacts of their synergistic bean breeding collaboration. Dr. Rosas remains active in research activities at Zamorano and as the Director of the new Master's Degree Program. His record exemplifies what a faculty member at an institution of higher learning in a developing country can do to contribute to research, teaching and the dissemination of technology to increase food security and impact smallholder farmers.

THE BEAN IMPROVEMENT COOPERATIVE

Proudly Presents the

Meritorious Service Award

to

James R. Myers

Oregon State University
Corvallis, Oregon

Sara F. Rose

Bush Brothers and Company
Knoxville, Tennessee

Distinguished Achievement Award

to

Frédéric Marsolais

Agriculture and Agri-Food Canada
London, ON, Canada

Technical Merit Award

to

Albert Jody Vander Wal

North Dakota State University
Fargo, North Dakota

*in recognition of outstanding accomplishments relating to bean (Phaseolus)
improvement*

JAMES R. MYERS

Dr. James R. Myers is an Indiana and Missouri native who received his BS degree at Kansas State University in 1978 in horticulture. He then attended the University of Wisconsin where he received MS (1981) and PhD (1984) in Plant Breeding and Genetics. Following a postdoctoral fellowship and research specialists positions at the University of Kentucky (1984-1987), Jim was an assistant and associate professor at the University of Idaho from 1987-1996 where he focused on dry bean research. During that tenure Jim was instrumental in releasing 14 bean cultivars in the Cranberry, Dark Red Kidney, Black, Small White, Navy, Great Northern, Pinto, Pink, and Small Red market classes. Since 1996 Jim has been the Baggett-Frazier Endowed Professor of Vegetable Breeding and Genetics at Oregon State University where he primarily focuses on snap bean breeding, breeding for white mold resistance and the genetics of flavor. His bush blue lake cultivar OSU 5630 occupies about 80% of the snap bean processing acreage in the Pacific Northwest. He continues dry bean research with breeding for bruchid resistance, and breeding and release of Mayocoba market class cultivars.

From a service perspective, Dr. Myers organized the Cooperative Dry Bean Nursery each year of his tenure at the University of Idaho. This is a critical nursery open to public and private breeders to collect multi-location performance data on their advanced breeding lines to ensure their lines meet the standards for modern improved varieties. Jim has served the Bean Improvement Cooperative as a member of the Coordinating Committee since 1996. Jim assisted the BIC by hosting the 1993 BIC meeting in Boise, Idaho and the 2013 BIC meeting in Portland, Oregon. Jim served from 1993-2002 on the BIC Genetics Committee (chairman 1993-1998). Since 1996, Jim has been a member of the Phaseolus Crop Germplasm Committee, and from 2002-2007, he served as president of the committee. Jim has also been a member of the Western Regional USDA W-3150 committee (and its progenitor committees) since 1987. Jim was a major contributor to USAID Bean/Cowpea CRSP projects from 1993-2007, and served in several capacities as research advisor (1997-2000; chair 1999-2002), technical committee member (1998-2002; chair 2000-2002), and regional facilitator (2002-2007). Jim also provided service to the community from 2009-2014 as a member

of the USDA Common Bean Coordinated Agricultural Project (BeanCAP) executive committee. As an educator, Jim has advised or co-advised 10 Ph.D., 13 M.S. and 24 undergraduate students.

Applied and basic common bean research has been strengthened by the presence of Dr. Myers's research program. Kusolwa and Myers (2011, 2012) significantly contributed to improve small-holder farmers' livelihoods. Bruchids are a major storage pest, and the efforts of these two researchers culminated in the introgression of a strong resistant gene, from tepary bean, into modern dry bean germplasm used in both Central America and Africa. This locus was mobilized in a recently released red kidney cultivar for distribution in the Americas and Africa (Kusolwa et al. 2015). Dr. Myers is the leading snap bean geneticists in the world. A recent publication of Jim's research group clarified the relationship of snap beans and dry beans. Wallace et al. (2018) confirmed the long-held belief that snap beans were primarily, but not exclusively, of Andean origin. From this publication, it is now known that Middle American snap beans are a distinct group, as are a group that shows admixture between the two gene pools. Among the various market classes of beans, this admixture is distinct to snap beans. Dr. James Myers has made many significant service and research contributions to the world common bean community, and the common bean community would be distinguished by awarding him the BIC Meritorious Service Award.

SARA F. ROSE

Sara Rose is a talented and capable individual who has long served as an active advocate for improved consumption of dry beans within the U.S. diet. Her advocacy for beans as a nutritious food has had many dimensions and has served the professional bean science community and the general public in many creative and tangible means. She came to this position with highly specialized credentials which have served the entire bean community. She graduated from Vanderbilt University (Bachelor of Arts, magna cum Laude, Phi Beta Kappa English major). She furthered her formal education through attaining an MBA from Indiana University, Evanston, IL. Her exceptional communication skills and sound business acumen have been directly channeled into improved study and promotion of dry beans.

Ms. Rose joined Bush Brothers and Company (Knoxville, TN) in 1996 and established a full career that culminated with retirement in 2018. During this period, she served in various roles including: Director of Research; Vice President and Director of Strategic Business Development; Vice President and Director, Industry and Government Affairs. She has been a champion and facilitator for securing publicly funded bean research appropriations.

In her role as vice president she directed Bush Brothers and Company Health Initiative which had many positive impacts on the use of beans in school lunch programs and other broad-based public nutrition policies. She is the named principle investigator on U.S. patents designed to reduce flatulence and enhance the digestibility of dry beans.

Ms. Rose provided long-term leadership through extensive communications and documentation with the Food and Drug Administration (FDA) regarding the health benefits of beans in the U.S. diet. These efforts resulted in the approval of the Bean Dietary Guidance Message (DGM) as follows: “A diet including beans may reduce your risk of heart disease and certain cancers.”

Her sustained efforts with leadership in the bean industry's Beans for Health Alliance resulted in a joint effort between USAID and industry to enhance educational awareness of the health benefits attributed to dry beans. This work resulted in documented promotion of "BEANS...the vegetable with more." Further, numerous publicly funded peer reviewed research projects focused on nutritional and health attributes of dry beans were awarded and administered under her leadership.

Ms. Rose provided the inspirational leadership for the United Nations declaration of the Year of the Pulse (2016). She served as primary coordinator of the conference "Little Beans, Big Opportunities: Realizing the Potential of Pulses to Meet Today's Global Health Challenges" held at the Sackler Institute for Nutrition Science at the New York Academy of Sciences, November 19, 2015. This nutrition conference program was the kickoff event for the International Year of the Pulse.

Ms. Rose has been a regular contributor to BIC meetings and has actively supported numerous research programs and individual researchers. She has been a career long servant on the various bean policy bodies including the U.S. Dry Bean Council, American Pulse Association, and as a board member of Pulse Canada. Sara F. Rose is a most worthy candidate for the prestigious BIC Meritorious Service Award.

FRÉDÉRIC MARSOLAIS

Dr. Frédéric Marsolais was born on March 24, 1968 in Jonquière, Québec, Canada. He is currently a Research Scientist at the London Research and Development Centre of Agriculture and Agri-Food Canada (AAFC) and Adjunct Research Professor, Department of Biology of the University of Western Ontario in London, Ontario, Canada. Dr. Marsolais graduated with a B.Sc. in Microbiology (1992) and an M. Sc. in Biology (1995) from Laval University, and a Ph. D. in Biology from Concordia University (2001). Prior to joining AAFC, he was an NSERC Visiting Fellow at Duke University and the University of North Carolina at Chapel Hill (2001-2003).

Dr. Marsolais' research focuses on the protein chemistry of pulses, particularly of common bean, including the relationship between seed protein composition and protein quality. His laboratory also investigates the metabolism of sulphur and amide amino acids, and its link with seed protein accumulation. Between 2014 and 2018, Dr. Marsolais was also responsible for the dry bean breeding program at the Harrow Research and Development Centre. During this time, navy bean cultivars AAC Argosy and AAC Shock were commercialized. Dr. Marsolais is an Editorial Board Member of the new Wiley journal Legume Science. To date he has published 49 articles in peer-reviewed journals and nine book chapters. He recently co-edited a book on the Common Bean Genome (published by Springer in 2017).

Dr. Marsolais has played a nearly unique and certainly important role in the bean community as a protein biochemist, given the important nutritional role of seed proteins in common bean. He discovered that the levels of nutritionally essential sulfur amino acids, methionine and cysteine, can be significantly increased in common bean genotypes lacking the 7S globulin phaseolin and lectin phytohemagglutinin, resulting in improved protein quality. This change happens mainly at the expense of an abundant non-protein amino acid, S-methylcysteine, which cannot substitute for methionine or cysteine in the diet. The absence of phaseolin and phytohemagglutinin is compensated by an increased concentration of multiple sulfur-rich proteins, including the 11S

globulin legumin, basic 7S globulin-2, albumin-2, albumin-1, trypsin and Kunitz trypsin inhibitors, and defensin D1. An investigation of the genetic basis of differences in protein composition identified several types of polymorphism, including single nucleotide changes affecting cis-regulatory elements in the promoters of phaseolin and lectin genes.

Furthermore, transcript profiling revealed a coordinated regulation of sulfate transporters, sulfate assimilatory enzymes, and other enzymes involved in cysteine and methionine metabolism. The differential gene expression of sulfur-rich proteins preceded that of sulfur metabolic enzymes, suggesting a regulation by demand from the protein sink. Recently, using stable isotope labeling combined with liquid chromatography and high-resolution tandem mass spectrometry, the biosynthetic pathways of S-methylcysteine were identified, providing information on potential targets for genetic improvement.

As a plant protein biochemist, Dr. Marsolais plays a role complementing those of breeders, nutritionists, and molecular biologists. As beans are touted as a more sustainable and healthy alternative protein source, the information developed by Dr. Marsolais on the molecular and biochemical basis of bean seed proteins is of increasing importance. Furthermore, he played an important role as a member of the Ontario, Canada, bean genome team, which developed genomic resources for common bean for the benefit of bean breeding. Both as a scientist and a team player in the bean community, he is a most deserving recipient of the Distinguished Achievement Award of the BIC!

ALBERT JODY VANDER WAL

Mr. Albert Jody Vander Wal, or as he prefers, Jody, is a research technician in the dry bean breeding program at North Dakota State University (NDSU). This is Jody's 38th year working in the dry bean breeding program, which is a great accomplishment by itself. However, this recognition is not just because of his long tenure at NDSU, but also because of his contributions to the program, the bean industry and to the people who have worked with him. Jody is a native of Linton, a town in south central North Dakota.

Jody obtained a B.S. in Zoology from NDSU in 1981 and right after graduation, he started working in the NDSU dry bean breeding program, the youngest public dry bean breeding program in the U.S., with Dr. Ken Grafton as the lead and Jody as the research technician. During the first year of the program, 3.5 acres of experiments at 3 locations were grown. In 2007, Dr. Juan Osorno was hired as the second dry bean breeder when Dr. Grafton moved on to administrative responsibilities at NDSU. Today, the breeding program grows ~40 acres of field experiments across 7 locations every year. Thanks to their hard work, the NDSU dry bean breeding program evolved to become one of the largest and most important programs in the country. In addition, North Dakota became the largest producer of dry beans in the country as well, which gave even more relevance to the breeding program at NDSU. Consequently, during many years and even today, many dry bean varieties grown in the region originated from the NDSU dry bean breeding program. Jody was actively involved in the development of well-known varieties such as Norstar, Frontier, Arthur, Hatton, Maverick, Eclipse, Lariat, Stampede, Avalanche, Talon, Rosie, and ND-Palomino, among others. Similarly, Jody has contributed to the development of improved germplasm with resistance to diseases and other important agronomic traits. In addition to these contributions, Jody has significantly assisted in the research, formation and training of more than 20 M.S. and Ph.D. students and numerous undergraduate students whom have worked as summer workers, interns, or visiting scholars in the program. Thanks to those contributions, Jody is the co-author of many variety releases as well as other research articles. As

mentioned by some students, Jody has the innate ability to be a friend, teacher, and supervisor all at the same time.

Jody is responsible for handling thousands of lines/genotypes every year in both the field and greenhouse. Jody is also the curator of all the breeding records for all this genetic material. Each year, Jody is in charge of making all the crosses in the greenhouse where he creates ~200 new parental combinations. Thanks to his recent efforts, all of the bean breeding program has been digitalized into a relational database, so he never stops learning and using technology to be more efficient. Jody frequently gets calls from growers and cooperators asking questions about dry bean production and varieties.

Jody has gained the respect of the entire Plant Sciences department and the local dry bean industry because of his diligence, hard work and discipline, organization, people skills, and quality performance. Jody's career and work performance could be summarized in three words: discipline, responsibility, and independence. Jody's hard work and contributions have been crucial for the success of the NDSU dry bean breeding program, the bean industry, and the bean scientific community.

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