



Prof. Paul Gibson
Honorary Professor / Crop Scientist

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About/Introductory statement

Professor Paul Gibson is an Honorary Professor in Plant Breeding & Statistics. His current passion is training young African plant breeders, an outgrowth of 50 years of international experience and a life calling to serve God by addressing hunger needs through improving crops in the developing world. Besides teaching courses in graduate plant breeding, statistics and quantitative genetics, he greatly enjoys mentoring graduate students in these specialties and guiding them through the design and analysis of their academic research.

His experience has included breeding for improvements especially in sorghum, maize and soybeans, and has indirectly involved over 20 African food security crops through the graduate students whom he has guided over the last 14 years in Makerere's regional post-graduate training program in plant breeding. Though his home country is USA, his career has involved 29 years of teaching and research in India, Costa Rica, Zambia, Ukraine, and Uganda.

At Southern Illinois University Prof. Gibson was an instructor, soybean breeder, and statistical advisor for 12 years. He maintains an adjunct associate professor position there.

His major professional interests involve:

- use of modernized methods in plant breeding,
- appropriate application of statistical data analysis in crop improvement,

- quantitative genetic theory (especially regarding degeneration of the human genome through accumulation of slightly deleterious mutations).

He has authored /co-authored over 100 publications in peer-reviewed journals, has developed and released 2 varieties in maize (Zambia), and co-developed 3 soybean varieties and 5 registered germplasms (USA). He also has co-authored two molecular genetic patents.

Qualifications

PhD in Plant Breeding & Cytogenetics, Minor in Statistics, Iowa State University, 1981.

MSc in Plant Breeding, Texas A&M University, 1975

MSc in Plant & Soil Science, Texas A&M University, 1973

Biography

Besides teaching, university research, and mentoring graduate students, one of Prof. Gibson's special projects was as co-developer of Mendel's Accountant, a biologically realistic computer population-genetics program that simulates accumulation of mutations over many generations. This work reinforces recent recognition that the human genome and other large, complex genomes are degenerating due to the accumulation of very slightly deleterious mutations, and thus losing biological and functional fitness at a significant rate per generation. *(See below)

He also has a keen interest in scientific evidences that indicate intelligent design in creation rather than the assertion that the universe and all life results from purposeless activity of matter and energy.

Prof. Gibson received a Fulbright Senior Scholar Award (1995-96), spent at Ukrainian National Agricultural University, and Dnipro State Agricultural University in instruction (plant breeding, statistics, and molecular and quantitative genetics).

At Southern Illinois University (1986-1998), Prof Gibson had primary responsibility for 6 major and several minor grants, totaling \$994,000, and cooperated in other grants, totaling \$2,347,000.

Prof. Gibson was born in Houston, Texas. He met his wife, Pauline, while he

was conducting his PhD research in India (1978), and she was working in villages there as a nurse-midwife. They have lived most of their life together outside the US. They have 3 children, a daughter and twin sons. Prema is a social worker in Illinois (USA), seeking to maintain cohesion in disintegrating families. Nathan in Germany is a university researcher in digital humanities and Middle-Eastern languages, and Stephan is a veterinarian in East Asia. These have produced five grandchildren.

* For more information about genomic degeneration, see the following:
P. Gibson et al., 2013. "Can Purifying Natural Selection Preserve Biological Information?" pp. 232-263. In: Biological Information-New Perspectives, https://www.worldscientific.com/doi/abs/10.1142/9789814508728_0010.
A. Kondrashov, 1995. Contamination of the genome by very slightly deleterious mutations: Why have we not died 100 times over? *Theoretical Biology* 175:4: 583-594.
<https://www.sciencedirect.com/science/article/pii/S0022519385701671>
A. Kondrashov. 2017. *Crumbling Genome: The Impact of Deleterious Mutations on Humans*. John Wiley & Sons.

Other Activities

Memberships

- American Society of Agronomy & Crop Science Society of America (since 1973)
- African Plant Breeders' Association (since 2018)
- Ugandan Plant Breeders' Association (since 2018)
- Society of Christian Scholars (since 2016)
- Plant Breeder Educators Community of Practice (since 2015)

Reviewer for Journals

- Crop Science
- Euphytica
- Frontiers in Plant Science
- Plant Breeding (Wiley)

- Black Sea J. of Agri.,

Activities

Next-Gen Cassava Breeding (2012-present), student mentor

June 2022 – present. Honorary Professor, Dept. of Agricultural Production, College of Agricultural and Environmental Sciences, Makerere University. Teaching classes related to Plant Breeding, mentoring graduate students.

Sept 2016—Aug, 2021. Senior Advisor & Plant Breeder, Sept 2016-2019: Deputy Director, MaRCCI, a World Bank African Centre of Excellence in Graduate Training. Overseeing student and short course training, and MaRCCI's cowpea and sorghum breeding programs. Involved in strategic planning, resource mobilization, grant writing, and partnership activities.

Sept., 2008 – Dec, 2019. Visiting Professor, Dept. of Agricultural Production, Makerere Univ., Kampala, Uganda. Instructor and mentor for students in Makerere's regional MSc in Plant Breeding and Seed Systems and PhD in Plant Breeding and Biotechnology at Makerere Univ. Taught: Plant Breeding theory, Practical Plant Breeding Methods, Quantitative Genetics, and Statistics. Actively involved in the guidance of students' research proposal development, experimental design, methods of data analysis, and preparation of theses and technical journal articles. Participated in resource mobilization and in development of PBEA (Plant Breeding e-Learning in Africa) modules.

Dec. 2005 – Dec, 2009. Consultant, GENE project. A multi-scientist team which has developed a computer population genetics simulator that tracks mutation accumulation over time.

Aug., 1998- present Adjunct Associate Professor, Plant Breeding and Statistics. Dept. of Plant, Soil, and General Agriculture, Southern Illinois University at Carbondale.

Sept, 2002 – May, 2008. Visiting Professor, Dnepropetrovsk, Ukraine.

Activities included lecturing, preparing scientific reports and journal articles, providing statistical consulting, preparing grant proposals, and assisting faculty members in preparation of English professional communications and collaboration with scientists in western institutions.

1995- Aug., 1998 Associate Professor, Plant Breeding and Statistics, Dept. of Plant, Soil, and Agricultural Systems, Southern Illinois University at Carbondale. Teaching, statistical consulting), soybean breeding, QTL discovery and application, and outreach.

1986- 1995 Assistant Professor Plant Breeding and Statistics, Dept. of Plant, Soil, and Agricultural Systems, Southern Illinois University at Carbondale.

Jan. 1997 - June 1997. Fulbright Senior Lecturer, Ukraine, Bila Tserkva Agricultural University, National Agricultural University, Dnipropetrovsk Agricultural University, Oilseed Research Institute. (Sabbatical)

1982-1986 Maize Breeder, Dept. of Plant & Soil Science, SIUC/US AID/Govt. of Zambia, Zambia Agricultural Research and Extension Project (ZAMARE), Mt. Makulu, Zambia. Established national variety testing program, released two cultivars, trained national counterparts, served as Assistant Team Leader and as Maize Research Team liaison to Adaptive Research Planning Team, and drafted Maize Research and Production Section of Zambian 4th Five-Year National Development Plan.

1981-1982 Visiting Assistant Professor. Agronomy Dept., Iowa State Univ. Research agronomist, farming system research, Univ. of Costa Rica Res. Station, Rio Frio., Costa Rica.

1980-1981 & 1975-1977 Graduate research asst. Small grains breeding, Iowa State Univ.

1977-1979 Research scholar. International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), India.

Teaching

Graduate courses in Plant Breeding, Statistics and Quantitative Genetics

Research

Plant breeding for crop improvement Experience includes sorghum (Texas USA & India), rainforest agricultural solutions (Costa Rica), soybean (IL USA), maize (Zambia), Uganda (as supervisor/mentor, primarily to graduate students in plant breeding researching 20+ food security crops).

Community based work Awards or special recognitions received

- Outstanding Contribution to Green Revolution in Africa. 2012. Award to Makerere University by the Alliance for a Green Revolution in Africa, for Makerere's MSc and PhD programs in plant breeding, in which I had been the lead instructor since 2008. One of two such awards given in the continent of Africa.
- Fulbright Senior Lecturer Fellowship, Ukraine, Jan.-June, 1997.
- Outstanding Soybean Research Group, 1996, Illinois Soybean Board.
- Bancroft Award for outstanding statistics minors, Iowa State Univ. (1978).
- Kemin Industries Award for outstanding advanced degree candidate in agriculture in 4 state region (1977).
- Texas A&M Outstanding Research Assistant (1974).
- B.S. Summa Cum Laude, Texas A&M, 1973, Class Rank # 1/488.
- National Science Foundation Graduate Fellowship (1974-1977).
- Texas A&M President's Scholar (1970-1974). Full expense four-year scholarship.
- National Merit Scholar (1970).
- Phi Kappa Phi and Gamma Sigma Delta Honor Societies.
- High School Valedictorian, Sterling High School, Houston, Texas. 1970. (#1 in class of 388).
- National Science Foundation Summer Fellowship for Outstanding High School Students (8 weeks of classes and guided research at Purdue University, 1969)