

Curriculum Vitae

Laboratories of Animal Breeding and Genetics, Department of Livestock Production and Management, Faculty of Veterinary and Animal Sciences, PMAS Arid Agriculture University Rawalpindi 46300 Pakistan

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Dr. Ghulam Bilal

Career Objectives

To excel in my field through hard work, honesty and diligence

Personal Data

Place of Birth:	Faisalabad, Punjab, Pakistan
Age:	36 Years
Marital Status:	Married
Languages:	Urdu, English, Punjabi, French(basic)

Education

[2008-2012]	PhD Animal Science (Animal Breeding and Genetics), McGill University, Montreal, Quebec, Canada
[2004-2007]	M.Sc (Hons.)/M.Phil Animal Breeding and Genetics, University of Agriculture, Faisalabad, Pakistan
[2000-2004]	B.Sc (Hons.) Animal Husbandry, University of Agriculture Faisalabad, Pakistan

Work Experience

- 1) Assistant Professor of Animal Breeding and Genetics at the Faculty of Veterinary and Animal Sciences, PMAS-Arid Agriculture University Rawalpindi, Pakistan from December 2012 till to date. [66 months]
- 2) Worked as Graduate Student Assistant at the Dept. of Animal Science, McGill University, Montreal, Quebec, Canada from September 2008 to December 2008 and then from January to July 2011. [11 months]
- 3) Worked as Lecturer in Animal Breeding & Genetics at the University College of Veterinary & Animal Sciences, The Islamia University of Bahawalpur, Pakistan from June 2007 to August 2008. [15 months]
- 4) Worked as a Research Fellow in the Agriculture Linkages Program (ALP) project titled "Development of milk recording and genetic evaluation models in Sahiwal cattle" at the Department of Animal Breeding and

Genetics, University of Agriculture Faisalabad, Pakistan from January 2005 to June 2005. <u>[6 months]</u>
Teaching Assignemnts
<u>Postgraduate Courses</u> 1. Advanced Concepts in Genetics 2. Population and Quantitative Genetics 3. Biometrical Techniques in Animal Breeding 4. Statistical Genetics and R programming 5. Postgraduate Seminar <u>Undergraduate Courses</u> 6. Introduction to Animal Breeding and Genetics 7. Principle of Genetics & Population Genetics 8. Animal Breeding Plans and Policies 9. Animal Husbandry 10. Introduction to Livestock Management 11. Equine and Camel Production 12. Beef Production 13. Small Ruminant Production 14. Sheep and Goat Production 15. Internship Supervision(DVM)
Publications
<u>Peer-Reviewed Conference/Meeting Abstracts</u> 1) Muhammad Moaeen-ud Din and Ghulam Bilal. 2018. Development of AFLP breed identification markers for Pakistani Cholistani cattle. [Accepted for poster presentation at ADSA Annual Meeting, Knoxville, Tennessee, USA June 24-27, 2018] J. Dairy Sci. 101 (Suppl. 2) : 236. 2) Ghulam Bilal and Muhammad Moaeen-ud Din. 2018. Allele frequency of β-casein gene in local dairy animals of Pakistan. [Accepted for poster presentation at ADSA Annual Meeting, Knoxville, Tennessee, USA June 24-27, 2018] J. Dairy Sci. 101 (Suppl. 2) : 41. 3) Muhammad Moaeen-ud Din, Ghulam Bilal, Raja Danish Muner, Nauman Wahid. 2018. A resolution to breed identification of Pakistani Sahiwal cattle. [Accepted for poster presentation at ADSA Annual Meeting, Knoxville, Tennessee, USA June 24-27, 2018] J. Dairy Sci. 101 (Suppl. 2) : 40. 4) G. Bilal, M. Moaeen-ud-Din, A. Zurwan. 2016. Growth Potential of Dhanni cattle under rainfed conditions of Punjab, Pakistan. [Accepted for oral presentation at ADSA®-ASAS Joint Annual Meeting, Salt Lake City, UT, USA July 19-23, 2016]. <i>J. Anim. Sci.</i> 94(E-Suppl. 5), 131. https://doi.org/10.2527/jam2016-0274. 5) M. Moaeen-ud-Din, G. Bilal, J. M. Reecy, M. S. Khan and S. Razzaq.

2016. Morphometric measurements and body weight affected by breed, age, and sex in the Sindh goat breed populations of Pakistan. [Accepted for oral presentation at ADSA®-ASAS Joint Annual Meeting, Salt Lake City, UT, USA July 19-23, 2016] *J. Anim. Sci.* 94(E-Suppl. 5), 838. <https://doi.org/10.2527/jam2016-1720>.
- 6) **G. Bilal** and M. Moaeen-ud-Din. 2016. Do buffaloes have better milk fat profile than cows? Where does the evidence stand in 2016?. [Accepted for poster presentation at ADSA®-ASAS Joint Annual Meeting, Salt Lake City, UT, USA July 19-23, 2016.] *J. Anim. Sci.* 94(E-Suppl. 5), 401. <https://doi.org/10.2527/jam2016-0834>.
 - 7) **G. Bilal**, M. Moaeen-ud-Din, M. Waseem, N. Ullah, J. M. Reecy, M. S. Khan and M. Yaqoob. 2015. A survey of management practices adopted by goat breeders in Azad Jammu and Kashmir (AJK), Pakistan. [Accepted for oral presentation at ADSA®-ASAS Joint Annual Meeting, Orlando, Florida, USA July 12-16, 2015.] Published at *J. Anim. Sci.* 93(E-Suppl. 3), 816.
 - 8) M. Moaeen-ud-Din and **G. Bilal**. 2014. Buffalo and cattle sequence diversity and molecular evolution. [Accepted for oral presentation at ADSA®-ASAS-CSAS Joint Annual Meeting, Kansas City, Missouri, USA July 20-24, 2014.] *J. Anim. Sci.* 92(E-Suppl. 2) 89.
 - 9) M. Moaeen-ud-Din, **G. Bilal**, and M. S. Khan. 2014. Genomic Selection of Nili-Ravi Buffalo.[Accepted for oral presentation at ADSA®-ASAS-CSAS Joint Annual Meeting, Kansas City, Missouri, USA July 20-24, 2014.] *J. Dairy Sci.* 97(E-Suppl. 1), 86.
 - 10) **G. Bilal**, M. Moaeen-ud-Din, M. Aqeel, A. Ijaz, M. S. Khan, M. Y. Gondal, K. M. Khan, M. Mukhtar and M. N. Manzoor. 2014. Effects of breed, sex, parity, birth year and birth season on body weight traits for five local cattle breeds and crossbreds in arid region of Punjab, Pakistan. [Accepted for poster presentation at ADSA®-ASAS-CSAS Joint Annual Meeting, Kansas city, Missouri, USA July 20-24, 2014.] *J. Anim. Sci.* 92(E-Suppl. 2), 459.
 - 11) **G. Bilal**, R. I. Cue and J. F. Hayes. 2013. Genetic correlations between feed intake and type traits in dairy cattle. [Accepted for oral presentation at ADSA®-ASAS Joint Annual Meeting, Indianapolis, Indiana, July 8-12, 2013.] *J. Dairy Sci.* 96(E-Suppl. 1), 388.
 - 12) M. Moaeen-ud-Din, **G. Bilal**, and H. M. Waheed. 2013. Genomic Selection of Sahiwal Cattle: A Developing Country Perspective. [Accepted for oral presentation at ADSA®-ASAS Joint Annual Meeting, Indianapolis, Indiana, July 8-12, 2013.] *J. Dairy Sci.* 96(E-Suppl. 1): 442.
 - 13) **G. Bilal**, R. I. Cue, A. F. Mustafa and J. F. Hayes. 2012. Genetic relationships among health related fatty acids in milk of Canadian Holsteins. [Accepted for oral presentation at ADSA®-AMPA-ASAS-CSAS-WSASAS Joint Annual Meeting, Phoenix, Arizona, July 15-19, 2012.] *J. Dairy Sci.* 95(Suppl. 3), 226.

Publications in Peer-Reviewed Journals

- 1) Moaeen-ud-Din, M. and **G. Bilal**. 2017. Effects of breed, various

environmental and maternal factors on growth traits in cattle. *J. Animal & Plant Sci.* 27(5): 1415-1419.

- 2) Zurwan, A., M. Moaeen-ud-Din, **G. Bilal**, Z. Rehman, M. S. Khan. 2017. Estimation of Genetic Parameters for Persistency of Lactation in Sahiwal Dairy Cattle. *Pak. J. Zoology* 49(3):877-882.
- 3) Moaeen-ud-Din, M. and **G. Bilal**. 2016. Genomic selection of Nili-Ravi buffalo: A choice for buffalo breeders. *Buffalo Bulletin* 35(4):605-615.
- 4) **Bilal, G.**, R. I. Cue, and J. F. Hayes. 2016. Genetic and phenotypic associations of type traits and body condition score with dry matter intake, milk yield and number of breedings in first lactation Canadian Holstein Cows. *Can. J. Anim. Sci.* 96(3): 434-447.
- 5) Moaeen-ud-Din, M., **Bilal, G.**, and J. M. Reecy. 2015. Evolution of hypothalamus-pituitary growth axis among fish, amphibian, birds and mammals. *Genetika.* 47(2):665-677.
- 6) Moaeen-ud-Din, M. and **Bilal, G.** 2015. Sequence diversity and molecular evolutionary rates between buffalo and cattle. *J. Anim. Breed. Genet.* 132(1):74-84.
- 7) **Bilal, G.**, R. I. Cue, A. F. Mustafa, and J. F. Hayes. 2014. Effects of parity, age at calving and stage of lactation on fatty acid composition of milk in Canadian Holsteins. *Can. J Anim. Sci.* 94: 401- 410.
- 8) M. Moaeen-ud-Din, **G. Bilal** and M.S. Khan. 2014. Short communication: Potential of Genomic selection in Sahiwal cattle. *Pak. J. Agri. Sci.* 51(3): 695-700.
- 9) **Bilal, G.**, R. I. Cue, A. F. Mustafa, and J. F. Hayes. 2014. Genetic parameters of individual fatty acids in milk of Canadian Holsteins. *J Dairy Sci.* 97: 1150–1156.
- 10) **Bilal, G.**, R. I. Cue, A. F. Mustafa, and J. F. Hayes. 2012. Estimates of heritabilities and genetic correlations among milk fatty acid unsaturation indices in Canadian Holsteins. *J Dairy Sci.* 95:7367-7371.
- 11) **Bilal, G.** and M. S. Khan. 2009. Use of test-day milk yield for genetic evaluation in dairy cattle: A Review. *Pakistan Vet. J.* 29: 35-41.
- 12) **Bilal, G.**, M. S. Khan, I. R. Bajwa and M. Shafiq. 2008. Genetic control of test-day milk yield in Sahiwal cattle. *Pakistan Vet. J.* 28: 21-24.
- 13) M. S. Khan, **G. Bilal**, I. R. Bajwa, Z. Rehman and S. Ahmad. 2008. Estimation of breeding values of Sahiwal cattle using test day milk yields. *Pakistan Vet. J.* 28: 131-135.
- 14) M. Yaqoob, F. Shahzad, M. Aslam, M. Younas and **G. Bilal**. 2009. Production performance of Dera Din Panah goat under desert range conditions in Pakistan. *Trop. Anim. Health Prod.* 41:1413-19.

Research Projects (Total Funds = 10.79 Million PKR)

- 1) Development of genetic evaluation model for Dhanni cattle as potential beef cattle in Potohar region of Punjab, funded by Pakistan Science Foundation, Islamabad, Pakistan (3.10 million Rs, 3 years) as Principal Investigator.
- 2) Development of breeding objective for desirable milk protein quality of dairy animals, funded by Higher Education Commission (HEC), Islamabad, Pakistan (3.27 million, 2 years) as Principal Investigator.
- 3) Development of breed identification markers for Pakistani dairy cattle

breeds, funded by Pakistan Science Foundation, Islamabad, Pakistan (4.42 million Rs, 3 years) as Co-Principal Investigator.
Development Project (s) (Total Funds = 799.192 Million PKR)
1) Establishment of National Centre for Livestock Breeding, Genetics and Genomics at Pir Mehr Ali Shah Arid Agriculture University Rawalpindi, funded by Planning Commission of Pakistan through HEC (799.192 million Rs, 3 years) as Focal Person [approved on 29.03.2018 in CDWP meeting]. Accessible at [https://nation.com.pk/03-Apr-2018/cdwp-approves-national-centre-for-livestock-breeding-at-arid-university] and [https://pakobserver.net/cdwp-approves-national-centre-for-livestock-breeding/] and [http://www.uaar.edu.pk/news-detail.php?news_id=349]
Administrative Experience
1) Secretary, Department of Livestock Production and Management (June 2015 to June 2018) 2) In Charge, Computer Lab, Faculty of Veterinary and Animal Sciences 3) In Charge, Milk Sale at Dairy Research Station
Seminars, Workshops, Conferences, Trainings and Consultative Meetings
1) Participation as resource person/speaker (talk titled " Selection of Dairy Breeds ") in the 1st National Training Workshop on " Commercial Dairy Farming" organised by Department of Livestock Production and Management at Pak-Korea Capacity Building Center, PMAS-Arid Agriculture University Rawalpindi on May 3-4, 2018. 2) Participated as Livestock Judge at the Animal Beauty Show/Competition organised by CVH, Dhoke Gujran, Rawalpindi on February 27, 2018. 3) Participation as invited speaker (talk titled "Application of genomic selection for improving beef production potential of local cattle") in International Conference on "Omics for Animal Sciences: opportunities and challenges" during February 20-21, 2018 at UVAS, Lahore. 4) Participation as invited speaker (talk titled " Importance of Progeny Testing Programme and Conservation of Dhanni Breed of Cattle ") in Capacity Building Training of Veterinary Officers /Veterinary Assistants under Development project "Conservation, Propagation and Development of Dhanni, Lohani & Dajal Breeds of cattle in Punjab", at BLPRI, Kheri Murat, Attock on May 24, 2017. 5) Participation as invited speaker (talk titled " Potential of genomic selection in poultry breed development") in National Seminar on "Development of dual purpose chicken breed for rural poultry sector of Pakistan" at NARC, Islamabad on May 15, 2017. 6) Participated as trainee Livestock Judge in "Sahiwal Cattle Show " organised by Research Center for Conservation of Sahiwal Cattle (RCCSC), Livestock and Dairy Development Department, Punjab, Pakistan on April 06, 2017.

- 7) International Workshop on "Goat Breeding and Marketing in Genomics Era" organised by Laboratories of Animal Breeding and Genetics, PMAS-Arid Agriculture University Rawalpindi on March 6-7, 2017.
- 8) International Training Workshop on "Genomic Selection" organised by Laboratories of Animal Breeding and Genetics, PMAS-Arid Agriculture University Rawalpindi on March 8-9, 2017.
- 9) Workshop on "Micro-Teaching: Becoming a Reflective Teacher" during January 30 to February 03, 2017 at Faculty Development Academy, CIIT, Islamabad.
- 10) Consultative meeting with Secretary Livestock and Dairy Development Department on "Production of Genomic Bulls for dairy cattle and buffalo in Punjab, Pakistan" on November 15, 2016 at Lahore Pakistan.
- 11) National Workshop on "Organic Food and Health: Avenues of Innovation and Entrepreneurship" on June 02, 2016 at PCST, Islamabad.
- 12) International Seminar on "Improvement and Development of the Korean Livestock Industry by Saemaul Undong & Quarantine and Inspection of Animal Products" on 25th February, 2016 at FV&AS, PMAS-Arid Agriculture University Rawalpindi.
- 13) Consultative workshop on "Goat Breeding in Pakistan" organised by Laboratories of Animal Breeding and Genetics, PMAS-Arid Agriculture University Rawalpindi on December 17, 2015.
- 14) Certificate Program in Public Procurement delivered on Massive Open Online Course offered by South Asia Regional Procurement Services, The World Bank, 1818H Street, NW, Washington, DC, 20433, USA.
- 15) Workshop on "Breeding and Genetics" on October 07, 2013 at University of Veterinary and Animal Sciences, Lahore, Pakistan organised by David McGill, a PhD student at Charles Stuart University, Australia under Agriculture Sector Linkages Program (ASLP) Dairy Project.
- 16) National Workshop on "Country-Domestic Animal Genetic Resources Information System (C-DAGRIS) Training in Pakistan" during November 15-17, 2012 at University of Agriculture Faisalabad, Pakistan.
- 17) Macdonald Innovations for Teaching Improvement (MITI) "Graduate Teaching Workshop" on December 3 and 5, 2008 at McGill University, Montreal, Quebec, Canada.
- 18) Learning Innovation Division, Higher Education Commission workshop on "Application of Statistics in Agriculture Research" during April 08-10, 2008 held at The Islamia University of Bahawalpur, Pakistan.
- 19) HEC-BC JHEL Program II National Workshop on "Genetic Resources and Molecular Techniques in Livestock Production" during March 20-22, 2008 at University of Agriculture, Faisalabad, Pakistan.
- 20) EU Asia Link Project Short Course on "Livestock Ecology, Sustainable Land Use and Livestock Systems" during January 12-24, 2004 at University of Agriculture, Faisalabad, Pakistan.

International Conferences

- 1) 2009 ADSA-CSAS-ASAS Joint Annual Meeting during July 12-16, 2009 at Montreal, Quebec, Canada.
- 2) 2012 ADSA-CSAS-ASAS Joint Annual Meeting during July 15-19, 2012 at Phoenix, Arizona, USA.

Honours and Awards

- 1) Research Productivity Award by Pakistan Council for Science and Technology (PCST, Islamabad, Pakistan) for the Year 2014-2015.
- 2) Honour of being the most productive scientist of PMAS-Arid Agriculture University, Rawalpindi during 2014-15 as notified by Pakistan Council for Science and Technology (PCST), Islamabad, Pakistan.

Academic Achievements

- 1) Winner of Graduate Research Enhancement and Travel (GREAT) award from McGill University Canada for oral presentation of research paper at Joint Annual Meeting, Phoenix, Arizona USA in July 2012
- 2) Winner of Provost Graduate Fellowship from McGill University, Montreal, Canada during 2008
- 3) Winner of McGill International Doctoral Award (MIDA) by McGill University Montreal Quebec Canada from September 2008 to August 2012
- 4) Winner of PhD Scholarship from the PMAS Arid Agriculture University, Rawalpindi, Pakistan under faculty development program from September 2008 to August 2012
- 5) Winner of University Merit Scholarship from the University of Agriculture, Faisalabad, Pakistan during 2004 to 2007.
- 6) Winner of Internal Merit Scholarship from the University of Agriculture Faisalabad during 2001 to 2004.

Reviewer of Scientific Journals

- 1) BMC Genetics
- 2) BMC Genomics
- 3) BMC Research Notes
- 4) European Scientific Journal
- 5) Italian Journal of Animal Science
- 6) Journal of Animal and Plant Sciences
- 7) Journal of Dairy Science
- 8) Livestock Science
- 9) Reproductive Biology
- 10) Tropical Animal Health and Production

Membership of Learned Societies

1. Member of American Dairy Science Association (ADSA), Champaign, IL, USA (2009-2014).
2. Editorial Board Member of Journal of Animal and Plant Sciences (JAPS), University of Veterinary and Animal Sciences, Lahore, Pakistan
3. Lifelong Registered Member of Pakistan Veterinary Medical Council,

Islamabad, Pakistan 4. Lifelong Registered Teaching Faculty of Pakistan Veterinary Medical Council, Islamabad, Pakistan 5. Lifelong Registered Member of Pakistan Association for the Advancement of Science, Lahore, Pakistan 6. Member of McGill Alumni Association (MAA) Montreal, Quebec, Canada
Key References
1) Dr. John Flannan Hayes (PhD advisor) at the Department of Animal Science, McGill University, Montreal, Quebec, Canada email:- john.f.hayes@mcgill.ca Address:- Room MS1-081, Macdonald-Stewart Building, 21,111 Lakeshore Road, Ste. Anne de Bellevue, Quebec H9X 3V9, Canada Tel.: 514-398-7804, Fax: 514-398-7964 2) Dr. Muhammad Sajjad Khan (M.Phil Advisor), Dean, Faculty of V Animal Husbandry, University of Agriculture Faisalabad 38000 Pakistan email:- drsajjad2@yahoo.com Address:- Dean, Faculty of Animal Husbandry, University of Agriculture Faisalabad 38000 Pakistan Tel: 0092-41-9200161-71 Ext. 3202 Fax: 92-41-2625191 Cell:- 0092-346-7440332