

MAMOUN GHARAIBEH

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Environment, Faculty of Agriculture
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Professor of Soil Water & Environmental Science

Fields of interest:

- Heavy metal uptake in plants
- Use of biochar for water treatment and soil reclamation
- Wastewater reuse in agriculture
- Soil reclamation
- Soil conservation and water erosion

ACADEMIC BACKGROUND

PhD: Soil, Water & Environmental Science	University of Arizona, USA	2000
MS: Soil, Water & Environmental Science	University of Arizona, USA	1996
BSc: Soil & Irrigation	University of Baghdad, Iraq	1991

EMPLOYMENT DETAILS

Chairman: Department of Natural Resources & Environment, Faculty of Agriculture Jordan University of Science & Technology Irbid, Jordan	2013-current
Chairman: Department of Natural Resources & Environment, Faculty of Agriculture Jordan University of Science & Technology Irbid, Jordan	2008-2011
Assistant Dean of Scientific Research Jordan University of Science & Technology Irbid, Jordan	2007-2008
Faculty Member Jordan University of Science & Technology Irbid, Jordan	2000-current

RESEARCH EXPERIENCE

Department of Natural Resources & Environment, Faculty of Agriculture Jordan University of Science & Technology Irbid, Jordan	Faculty member	2000-current
Department of Soil Science/Soil Ecology, Institute of Geography, Ruhr-University Bochum Bochum, Germany	Visiting scientist	Summer: (June-Sep) 2012

Helmholtz Centre for Environmental Research (UFZ) Leipzig, Germany	Visiting researcher	Summer: (June-Sep) 2002
Sonora Environmental Research Institute (SERI) Tucson, Arizona, USA <i>(US Patent, US-SB, Use of glass cullet in cleansers and detergents)</i>	Researcher	1999-2000
Environmental Research Lab Department of Soil, Water & Environment University of Arizona, USA <i>Heavy metals, uranium, and nitrate uptake, DOE-UMTRA study.</i>	Research Assistant	1995-1997
Soil & Water Lab. Department of Soil, Water & Environment University of Arizona, USA	Research Assistant	1997-1998
Soil Physics Lab Department of Soil, Water & Environment University of Arizona, USA <i>NRC-Nuclear Regulatory Commission funded research on water movement in rock material.</i>	Research Assistant	1998-2000

PUBLISHED RESEARCH

- 1) **Mamoun A. Gharaibeh**, Teamrat A. Ghezzehei, Ammar A. Albalasmeh, Ma'in Z. Alghzawi (2016). Alteration of Physical and Chemical Characteristics of Clayey Soils by Irrigation with Treated Waste Water. *Geoderma*. 276: 33-40.
- 2) **Mamoun A. Gharaibeh**, Ammar A. Albalasmeh, Bernd Marschner, Yasmeeen Sleem (2016). Cadmium uptake and translocation of tomato in response to simulated irrigation water containing elevated concentrations of cadmium and zinc in clayey soil. *Water, Air and Soil Pollution*. 227 (5): 133. DOI: [10.1007/s11270-016-2829-8](https://doi.org/10.1007/s11270-016-2829-8)
- 3) Ali El Hanandeh, **Mamoun Gharaibeh** (2016). Life cycle assessment of small and micro-scale olive farming: The case of northern Jordan. Minor revisions submitted *Agricultural Systems*.
- 4) **Mamoun A. Gharaibeh**, Bernd Marschner, Stefanie Heinze (2015). Metal uptake of tomato and alfalfa plants as affected by water source, salinity and Cd and Zn levels under greenhouse conditions. *Environmental Science and Pollution Research*. 22 (23), 18894-18905.
- 5) **Gharaibeh, M.A.**, Rusan, M.J., Eltaif, N.I., Shunnar, O.F. (2014). Reclamation of highly calcareous saline-sodic soil using low quality water and phosphogypsum. *Applied Water Science*. 4(3):223:230.
- 6) **Mamoun Gharaibeh** and Nabil Eltaif (2014). Impact of water quality, cultivation, and cropping systems on infiltration and physical properties of an arid clay soil. *Soil and water Research*. 9 (3): 127–134.
- 7) **Gharaibeh M.A.**, Eltaif N.I., Shra'a S.H. (2012). Desalination and Desodification Curves of Highly Saline-Sodic Soil Amended with Phosphoric Acid and by-Product Gypsum. *International Journal of Environmental Science and Development*. 3(1): 39-42.

- 8) Nabil I. Eltaif and Mamoun A. Gharaibeh (2012). Shear stress and dispersion as affected by flow of sodium solutions through clayey soil. *Archives of Agronomy and Soil Science*. 58(10): 1195-1203.
- 9) Mohammad N. Alhamad, Mohammad A. Alrababah, Mamoun A. Gharaibeh (2012). Impact of burning and fertilization on dry Mediterranean grassland productivity and diversity. *Acta Oecologica* 40: 19-26.
- 10) Obeidat, B.S., Alrababah, M.A., Alhamad, M.N., Gharaibeh, M.A., Abu Ishmais, M.A. (2012). Effects of feeding carob pods (*Ceratonia siliqua* L.) on nursing performance of Awassi ewes and their lambs. *Small Ruminant Research*, 105(1-3), 9-15.
- 11) Gharaibeh, M.A., Eltaif, N.I., Al-Balasmeh, A.A. (2011). Reclamation of highly calcareous saline sodic soil using *atriplex halimus* and by-product gypsum. *International Journal of Phytoremediation*. 13: 873-883.
- 12) Eltaif, N.I., Gharaibeh, M.A., Ababneh, Z.A. (2011). Changes in selected soil physical properties caused by sodicity of soil and irrigation water. *Acta Agriculturae Scandinavica, Section B - Soil & Plant Science*. 61: 84-91.
- 13) N. I. Eltaif, M.A. Gharaibeh (2011). Application of mathematical model to predict and reduce wind erosion in non-protected arid lands. *Revista Chapingo Serie Ciencias Forestales y del Ambiente*, XVII, Edición Especial: 195-206.
- 14) Obeidat, B.S., Alrababah, M.A., Abdullah, A.Y., Alhamad, M.N., Gharaibeh, M.A., Rababah, T.M., Abu Ishmais, M.A. (2011). Growth performance and carcass characteristics of Awassi lambs fed diets containing carob pods (*Ceratonia siliqua* L.). *Small Ruminant Research*, 96 (2-3), 149-154.
- 15) N.I. Eltaif, M.A. Gharaibeh, F. Al-Zaitawi, M. N. Alhamad (2010). Approximation of Rainfall Erosivity Factors North Jordan. *Pedosphere*. 20 (6): 711-717.
- 16) Gharaibeh, M.A., Eltaif, N.I., Shra'ah, S.H. (2010). Reclamation of a calcareous saline-sodic soil using phosphoric acid and by-product gypsum. *Soil Use & Management*. 26 (2): 141-148.
- 17) Gharaibeh M.A., Eltaif N. I., Shunar O. (2009). Leaching and reclamation of calcareous saline-sodic soil by moderate saline and SAR water using gypsum and calcium chloride. *Journal of Plant Nutrition and Soil Science*. 172 (5): 713-719.
- 18) Eltaif N. I., Gharaibeh M.A. (2009). Aggregation of undisturbed soil mesosoms inoculated by earthworm after different cultivation- tillage systems. *Soil & Tillage Research*. 106 (1): 104-106.
- 19) Eltaif N. I., Gharaibeh M.A. (2008). Effect of Alum on some physical properties of calcareous soil. *Soil Use & Management*. 24 (4): 424 - 426.
- 20) Eltaif N. I., Gharaibeh M.A. (2007). Effects of Single and Mixed Ion Solutions on Hydraulic and Physical Properties of a Clay Soil. *Water Air and Soil Pollution*. 181: 297-302.
- 21) Gharaibeh M.A., Eltaif N.I., Al-Abdullah B. (2007). Impact of field application of treated wastewater on hydraulic properties of vertisols. *Water Air and Soil Pollution*. 184: 347-353.
- 22) Gharaibeh, M.A., Eltaif, N.I., Al-Sharif M. (2007). Effect of treated greywater using constructed wetland and different water qualities on the hydraulic properties of arid soils. *World Engineering Congress*. Penang, Malaysia.
- 23) Wolf, A. A., Spitz, A. H., Olson, G., Závodská, A., M. Algharaibeh. (2003). Characterization of the Solid Waste Stream of the Tohono O'odham Nation. *Journal of Environmental Health*. 65 (8): 9-15.

- 24) D.J. Baumgartner, E.P. Glenn, T.L. Thompson, J.F. Artiola, S.E. Menke, R.A. Saar, G.S. Moss, **M.A. Alghraibeh**. (2000). Plant Uptake Response to Metals and Nitrate in Simulated Uranium Mill Tailings Contaminated Groundwater. *Water, Air, and Soil Pollution*. 118: 115-129.
- 25) **Algharaibeh, M.**, Kern, J. M., Lindquist, J. L., Spitz, A. H., Wolf, A. A., and A. Závodská (2000). "A New Use for Mixed Glass Cullet," Final Report submitted for ADEQ Grant WRA-99-0047AC. US Patent, US-SB, Use of glass cullet in cleansers and detergents.

CONFERENCE PUBLISHED RESEARCH

- 26) Ammar Albalasmeh, **Mamoun Gharaibeh**, and Teamrat Ghezzehei. (2016). Field measurement and model prediction of infiltration in treated wastewater irrigated clayey soil. *Geophysical Research Abstracts*. Vol. 18, EGU2016-226, 2016 EGU General Assembly. Vienna, Austria.
- 27) **Mamoun Gharaibeh**, Shady Shra'a (2016). Evaluation of treated wastewater using water quality index. *19th International Water Technology Conference*. Sharm El-Sheikh, Egypt.
- 28) **Mamoun Gharaibeh**, Ammar Albalasmeh, and Ma'in Alghzawi. (2015). Modeling Water Infiltration in Soil Irrigated with Treated Wastewater. *Geophysical Research Abstracts*. Vol. 17, EGU2015-13617, EGU General Assembly. Vienna, Austria.
- 29) **Mamoun Gharaibeh**, Yaser Mohawesh, and Hafsa Al-Zubi (2014). Evaluation of applied erosion practices in a semi-arid area. *International Conference on Civil, Biological and Environmental Engineering (CBEE)*. May, Istanbul, Turkey.
- 30) **Mamoun Gharaibeh**, Nabil Eltaif and Shady Shra'a (2011). Leaching Curves of Highly Saline-Sodic Soil Amended with Phosphoric Acid and Phosphogypsum. 2011. *2nd International Conference on Agricultural & Animal Sciences. Maldives*.
- 31) **Gharaibeh M.A.**, Eltaif N.I., Alrababah M.A., M.N. Alhamad (2009). Experimental evaluation of four infiltration models for calcareous soil irrigated with treated untreated grey water and fresh water. *Geophysical Research Abstracts*. 11: 2009-5024.
- 32) **M.A. Gharaibeh**, N.I. Eltaif, M.A. Alrababah, and M.N. Alhamad. (2009). Experimental evaluation of four infiltration models for calcareous soil irrigated with treated untreated grey water and fresh water. *Geophysical Research Abstracts*, Vol. 11, EGU2009-5024. EGU General Assembly. Vienna, Austria.
- 33) **Algharaibeh, M.A.**, Hendricks, D.M. (2004). Prediction and assessment of atmospheric influx using geochemical indices. *Proceeding of the Fourth International Conference on Engineering Computational Technology*. Civil-Comp Press. Edited by: B.H.V. Topping and C.A. Mota Soares. Lisbon, Portugal.
- 34) **Algharaibeh, M.A.**, Bani-Hani, K.A. (2003). Prediction of phytotoxicity of metal uptake in plants using artificial neural networks. *Proceeding of the Seventh International Conference on the Application of Artificial Intelligence to Civil and Structural Engineering*. Civil-Comp Press. Edited by: B.H.V. Topping. Egmond aan Zee, The Netherlands.

SUBMITTED PUBLICATION

1. Ali El Hanandeh, Ammar Al balasmeh, **Mamoun Gharaibeh (2016)**. Phosphorus removal from wastewater in biofiltration systems with biochar amended geomedia: Effect of biochar particle size. Revised version re-submitted to **Clean Soil, Air, Water**.
2. Ali El Hanandeh, **Mamoun Gharaibeh**, Ammar Al balasmeh (2016). Effectiveness of sand augmented with biochar in removing phosphorus from wastewater under different loading conditions. Submitted to **Water Science and Technology**.

PUBLICATION TO BE SUBMITTED

1. **Gharaibeh, M.A.**, Ali El Hanandeh, Shara'a, S.H. (2016-2017). Water quality for treated wastewater: Environmental and public health issues. In preparation: To **Agricultural Water Management**.
2. **Gharaibeh, M.A.**, Mhawish, Y., Al-Balasmeh, A.A., Zoubi, H.A. (2016-2017). Soil conservational practices in arid lands: Use of USLE to predict soil loss: farmers' perception towards adoption. In preparation: **To be submitted to Pedosphere**.
3. Al-Balasmeh, A.A., **Gharaibeh, M.A.**, Alghzawi, M.A. (2016-2017). Modeling of water infiltration in treated wastewater irrigated soils. To be submitted to **Irrigation Science**.
4. Ali El Hanandeh, **Mamoun Gharibeh**, Ammar A. Albalasmeh. (2016-2017). Removal of phenols, phosphorus and nitrogen from olive oil wastewater using electrochemically modified biochar.

INTERNATIONAL AWARDED GRANTS

1. **German Research Foundation (DFG)**. 2013. Ruhr-University Bochum, Bochum, Germany. Funded research visit (3 months). Cadmium and Zinc uptake in tomato and alfalfa irrigated with TWW as affected by salinity metal levels under greenhouse conditions.
2. **The Higher Council for Science and Technology (HCST)**. 2012. Municipal sludge treatment and reuse options: Solutions for Jordan. \$ 240,000.
3. **United States Agency International Development (USAID)- William Davidson Institute (WDI)- University of Michigan**, Higher education development (HED). 2012. Treated Wastewater: Quality Assessment & Farmer's perception - Public Health Issues. \$ 30,000.
4. **United States Agency International Development (USAID)-William Davidson Institute (WDI)- University of Michigan**, Higher education development (HED). 2011. Soil conservational practices in arid lands: Use of USLE to predict soil loss: Farmers' perception towards adoption. \$ 30,000.
5. **Helmholtz Centre for Environmental Research (UFZ)**. 2002. Leipzig, Germany. Funded research training visit (3 months). Constructed wetlands for water treatment.
6. **Sonora Environmental Research Institute, Inc. (SERI)**. 2000. Improving the feasibility of using recycled mixed glass cullet as an alternative abrasive for industrial strength cleansers. Arizona Department of Environmental Quality (ADEQ). \$ 145,000.

JOURNAL REFEREE

Frequent referee for Agricultural Water Management, also refereed for Geoderma, PLOS ONE, Pedosphere Land Degradation & Development, International Journal of Phytoremediation, Chemosphere, Journal of Geochemical Exploration, South African Journal of Plant and Soil, African Journal of Agricultural Research, Arid Land Research and Management, Soil & Tillage Research, Archive of Agronomy & Soil Science, Journal of Plant Nutrition and Soil Science, Journal of Water Management, Journal of Water Resources and Protection, Journal of Environmental Management, Journal of Agricultural Science & Technology, International Journal of Environment and Waste Management, International Journal of Water Resources & Protection, Plant, Soil and Environment, Polish Journal of soil research, Polish Journal of environmental studies, Jordan Journal of Agricultural Sciences, and Jordan Journal of Biological Sciences.