**Appendix 4.1.1 NR Staff Handbook**

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| Name | Maher Jamal Tadros |
| Post | Professor in vegetation Ecology and Management |
| Academic career | Ph.D. Purdue University 2003<br>M.Sc. University of Jordan 1997<br>B.Sc. University of Jordan 1995 |
| Employment | Professor Jordan University of Science and Technology 2003-now |
| Research and development projects over the last 5 years | - AGROPOPLAR: Farming with mixed agroforestry poplar systems to boost resilience and sustainable development in the Mediterranean basin. PRIMA fund 2020.<br>- Impact of trees on the urban microclimate under climate change: Mechanisms and ecosystem services of urban tree species in temperate, Mediterranean and arid major cities. DFG funded 2020.<br>- Evaluation of different soilless media on growth, quality and yield of two cucumber cultivars (cucumis sativus l.) grown under greenhouse conditions. Deanship of Research fund JUST.2017. |
| Industry collaborations | - The Technology of Waterboxxes in Karatchi/ Pakistan – SOORTY company during the period of 21st – 24th of January, 2019. |
| Patents | - |
| Important publications over the last 5 years | Total number 23<br><br>1. Maher J. Tadros, Naji K. Al-Mefleh, Yahia Othman, Amani Al-Assaf. 2021.Water harvesting techniques for improving soil water content, and morpho-physiology of pistachio trees under rainfed conditions. January 2021. Agricultural Water Management 243:106464. DOI: 10.1016/j.agwat.2020.106464.<br>2. Maher J. Tadros, Amani Al-Assaf, Yahia Othman, Hatem Tayfor. 2020. Evaluating the Effect of Prosopis juliflora, an Alien Invasive Species, on Land Cover Change Using Remote Sensing Approach. Sustainability 12(5887). DOI: 10.3390/su12155887.<br>3. Maher J. Tadros, Hussam J. Omari, Munir A. Turk. 2019. The morphological, physiological and biochemical responses of sweet corn to foliar application of amino acids biostimulants sprayed at three growth stages. Australian Journal of Crop Sciences.13(3): 412-417.<br>4. Ahmad M. Al-Far, Maher J. Tadros, Ibrahim M. Makhadmeh. 2019. Evaluation of different soilless media on growth, quality, and yield of cucumber (Cucumis sativus L.) grown under greenhouse conditions. Australian Journal of Crop Sciences. 13(8):1388-1401 |
| Activities in specialist bodies over the last 5 years | Organization Role Period<br>Agricultural Engineers Association (AEA) Member 1995-now<br>Society of American Foresters Member 1999-2011<br>CSA, ASA, SSA Member 1999-2009 |

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|---|---|
| Name | Mamoun Abdullah Mahmoud Gharaibeh |
| Post | Professor of Soil Reclamation and Water Quality |
| Academic career | Ph.D. University of Arizona, Tucson, USA 2000<br>M.Sc. University of Arizona, Tucson, USA 1996<br>B.Sc. University of Baghdad, Iraq 1991 |
| Employment | Professor Jordan University of Science and Technology 2000-now |
| Research and development projects over the last 5 years | - Salinity and sodicity levels and distribution in salt-affected soils of the of the Jordan Valley. 2016, 14000 USD<br>- Metals and micronutrients levels and distribution in salt-affected soils of the of the Jordan Valley, 2018, 30000 USD.<br>- Modification and use of biochar derived from Jordanian olive waste for domestic and industrial wastewater treatment, 2016, 15000 USD.<br>- Effects of temperature and particle size on biochar yield from pyrolysis of agricultural residues, 2016, 15200 USD. |
| Industry collaborations | - |
| Patents | 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. |
| Important publications over the last 5 years | Total number 35<br><br>1. Gharaibeh MA, Albalasmeh AA, Pratt C, El Hanandeh A (2021) Estimation of exchangeable sodium percentage from sodium adsorption ratio of salt-affected soils using traditional and dilution extracts, saturation percentage, electrical conductivity, and generalized regression neural networks. Catena 205:105466<br>2. Gharaibeh MA, Albalasmeh AA, El Hanandeh A (2021) Estimation of saturated paste electrical conductivity using three modelling approaches: Traditional dilution extracts; saturation percentage and artificial neural networks. Catena 200:105141<br>3. Mamoun A. Gharaibeh, Bernd Mraschner, Stefanie Heinze, Nicolai Moos 2020. Spatial distribution of metals in soils under agriculture in the Jordan Valley. Geoderma Regional, 20 e00245. Q2<br>4. 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. Q1.<br>5. Mamoun A. Gharaibeh, Ammar A. Albalasmeh, Bernd Marschner, Yasmeen 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. Q1.<br>6. Ali El Hanandeh, Mamoun A. Gharaibeh (2016). Environmental |

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| | Efficiency of Olive Oil Production by Small and Micro- scale Farmers in Northern Jordan: Life Cycle Assessment. Agricultural Systems. 148: 169-177. Q1. | | |
| Activities in specialist bodies over the last 5 years | Organization<br>Agricultural Engineers Association (AEA)<br>European Geophysical Union (EGU) | Role<br>Member<br>Member | Period<br>2000-now<br>2013-now |

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|---|---|
| Name | Moh'd Khair Jaber El-Shatnawi |
| Post | Professor of Range Science |
| Academic career | Ph.D. New Mexico State University 1995<br>M.Sc. University of Jordan 1988<br>B.Sc. University of Jordan 1981 |
| Employment | Professor Jordan University of Science and Technology 1995-now |
| Research and development projects over the last 5 years | - Range Management and Range Plant Ecology under Arid and Semiarid Climate<br>- Agro-biodiversity researches<br>- Field crop management |
| Industry collaborations | - |
| Patents | - |
| Important publications over the last 5 years | 1. El-Shatnawi, M. K. and Haddad, N. I. 2004. Assessing barley (Hordeum vulgare) response to clipping in the semi-arid Mediterranean Climate. Australian Journal of Experimental Agriculture 44:37-42.<br>2. El-Shatnawi, M. K. and Al-Qurran, L. Z. 2003. Seasonal Chemical Composition of Wall Barley under Sub-humid Mediterranean Climate. African Journal of Range and Forage Science 20:243-246.<br>3. El-Shatnawi, M. K. and Ksiksi, T. 2001. Up In The Air How might global warming and the greenhouse effect impact rangelands?. Rangelands 23:24-26.<br>4. El-Shatnawi, M. K. and Turk, M. A. 2002. Dry matter accumulation and chemical content of saltbush (Atriplex halimus) grown in Mediterranean desert shrublands. New Zealand Journal of Agricultural Research 45:139-144.<br>5. El-Shatnawi, M. K. J, Al-Qurran, L. Z. and Ereifej, K. I. Saoub, H. M. 2004. Management optimization of Dual-purpose barley (Hordeum spontaneum C. Koch) for Forage and Seed Yield. Journal of Range Management 57:197-202. |
| Activities in specialist bodies over the last 5 years | Organization — Role — Period<br>Agricultural Engineers Association (AEA) — Member — 1981-now<br>Society for Range Management, USA — Member — 1991-2001<br>Grassland Society of Southern Africa. — Member — 1998-2000 |

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|---|---|
| Name | Mohammad A. Alrababah |
| Post | Professor of Forestry and Natural Resources Ecology & Management |
| Academic career | Ph.D. Texas A&M University 2003<br>M.Sc. University of Jordan 1996<br>B.Sc. University of Jordan 1993 |
| Employment | Professor Jordan University of Science and Technology 2003-now |
| Research and development projects over the last 5 years | - Drought assessment in North Jordan using Remote Sensing and GIS Technologies, 2020, 5900 JD<br>- Detecting forest cover change in north Jordan using very high resolution satellite images, 2018, 6000 JD<br>- Land use Land cover change detection in northern Jordan using remote sensing, 2015 |
| Industry collaborations | - |
| Patents | - |
| Important publications over the last 5 years | Total number is 26<br><br>1. Alhamad M.N., M.A. Alrababah, A.Gharaibeh, S. Allred. 2020. Dryland rainwater harvesting: community based management approach, International Journal of Sustainable Agricultural Management and Informatics, in press<br>2. Shakhatreh Y., M. Baum, N. Haddad, M.A. Alrababah, S. Ceccarelli. 2015. Assessment of genetic diversity among Jordanian wild barley (Hordeum spontaneum) genotypes revealed by SSR markers, Genetic Resources and Crop Evolution, 63 (5), DOI: 10.1007/s10722-015-0285-8<br>3. Rababah, T., M. Al-Omoush, S. Brewer, Alhamad, M., W. Yang, M. Alrababah, A. Al‚ÄêGhzawi, M. Aludatt, K. Ereifej, F. Alsheyab, R. Esoh, A. Almajwal. 2014. Total Phenol, Antioxidant Activity, Flavonoids, Anthocyanins and Color of Honey as Affected by Floral Origin Found in the Arid and Semiarid Mediterranean Areas: Total Phenol, Antioxidant Activity, Flavonoids. Journal of Food Processing and Preservation. 38. 10.1111/jfpp.12071. |
| Activities in specialist bodies over the last 5 years | Organization / Role / Period<br>Agricultural Engineers Association (AEA) / Member / 1993-now<br>Society of American Foresters (SAF) / Member / 2005 – 2019<br>Society for GIS and Spatial Technologies / President / 2009 – 2014<br>Jordanian Beekeepers Association / President / 2014- now |

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|---|---|
| Name | Mohammad Noor S. Alhamad |
| Post | Professor of Natural Resources Ecology |
| Academic career | Ph.D. Texas A& M University 2002<br>M.Sc. University of Jordan 1995<br>B.Sc. University of Jordan 1992 |
| Employment | Assistant Professor Jordan University of Science and Technology 2002-now |
| Research and development projects over the last 5 years | - Land use land cover change detection in northern Jordan using remote sensing<br>- Improving dryland revegetation success using volcanic Tuff<br>- Integrated honeybee management in Jordan<br>- Community based management of natural resources in dry areas in northeastern Jordan |
| Industry collaborations | - |
| Patents | - |
| Important publications over the last 5 years | Total number is 62<br><br>1. Alhamad M.N., Alrababaha, M. A., Jaradat, S. A Anne A. Gharaibeh &Allred, S. B. (2020) Drylands rainwater harvesting: A community-based management approach. Int. J. of Sustainable Agricultural Management and Informatics. Accepted, in press.<br>2. Alu'datt, M.H. T Rababah, M.N. Alhamad, A. Al-Tawaha, A.R. Al-Tawaha, S. Gammoh, K. I Ereifej, G. Al-Karaki, H. R Hamasha, C. C Tranchant, and S. Kubow.2019. Herbal yield, nutritive composition, phenolic contents and antioxidant activity of purslane (Portulaca oleracea L.) grown in different soilless media in a closed system. Industrial Crops and Products.141, 111746.<br>3. Alu'datt, M.H., T. Rababah, M.N. Alhamad, A. Al-Ghzawi, K. Ereifej, S. Gammoh, A. Almajwal, N. M Hussein, and M. Raweshadeh. 2017. Optimization, characterization and biological properties of phenolic compounds extracted from Rosmarinus officinalis. Journal of Essential Oil Research 29 (5), 375-384<br>4. Alhamad, M. N., T. M. Rababah, M. Al-u'datt, K. Ereifej, R. Esoh, H. Feng, and W. Yang. 2017. The physicochemical properties, total phenolic, antioxidant activities, and Phenolic profile of fermented Olive cake. Arabian Journal of Chemistry. 10:136-140 |
| Activities in specialist bodies over the last 5 years | Organization Role Period<br>Agricultural Engineers Association (AEA) Member 1992-pressent<br>European Geophysical Union (EGU) Member 2013-2018<br>Society For Range Management Member 2013-2016<br>International Union for Conservation of Nature/ Member 2010-present<br>Committee on Ecosystem Management |

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| Name | Munir Jamil Rusan |
| Post | Professor of Soil Fertility and Plant Nutrition |
| Academic career | Ph.D. Washington State University 1994<br>M.Sc. Washington State University 1987<br>B.Sc. Moscow University 1979 |
| Employment | Professor Jordan University of Science and Technology 1995-now |
| Research and development projects over the last 5 years | - Mediterranean Cooperation in the Treatment and Valorization of Olive Mill Wastewater (MEDOLICO). 2015. Funded by EU. Budget = 500,000 €<br><br>- Decentralized Composting in Small Cities (DECOST). 2019. Funded by EU. Budget = 618,000 € |
| Industry collaborations | - |
| Patents | - |
| Important publications over the last 5 years | Total number is 63<br><br>1. Albalasmeh, A.A., M.A. Alajlouni, M.A. Gharaibeh, M.J. Rusan. 2019. Short-Term Effects of Olive Mill Wastewater Land Spreading on Soil Physical and Hydraulic Properties, Water, Air, & Soil Pollution, 230:208. https://doi.org/10.1007/s11270-019-4243-5.<br>2. Rusan, M. 2018. Fertigation Techniques for Efficient Water and Nutrient Use in Agriculture. In. (Ed.) Oweis, T. (ed.), Water management for sustainable agriculture, Burleigh Dodds Science Publishing, Cambridge, UK (ISBN:978 1 78676 176 7; www.bdspublishing.com)<br>3. Rusan, M., and H. Malkawi. 2016. Dilution of olive mill wastewater (OMW) eliminates its phytotoxicity and enhances plant growth and soil fertility. Desalination and Water Treatment. Volume (57)57: 27945-27953. https://doil.org/10.1080/19443994.2016.1186397n.<br>4. Rusan, M.J., A.A. Albalasmeh and H.I. Malkawi. 2016. Olive mill wastewater treated by different technologies: soil quality and plant growth, Water, Air, & Soil Pollution, 227:135. https://doi.org/10.1007/s11270- 016-2837-8. |
| Activities in specialist bodies over the last 5 years | Organization Role Period<br>Agricultural Engineers Association (AEA) Member 1994 – now<br>Arab Fertilizer Association (AFA): Consultant 2003 – now<br>Arab Potash Company (APC): Consultant 2003 – now<br>International Plant Nutrition Institute (IPNI) Consultant. 2007 – 2017 |

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| Name | Saeb Abdelhaleem Khresat |
| Post | Professor of Soil Genesis |
| Academic career | Ph.D. New Mexico State University 1993<br>M.Sc. University of Jordan 1987<br>B.Sc. University of Jordan 1984 |
| Employment | Professor Jordan University of Science and Technology 2008-now |
| Research and development projects over the last 5 years | - Climate change effect on soil properties and agriculture.<br>- Effect of climatic changes on soil pedogenesis, Land use and management, soil conservation.<br>- Diversity, Ecology, and Reclamation Potential of Atriplex Endophytes (Funded by IALC, International Arid Lands Consortium, USA ($ 75,000).<br>- Assessment and monitoring of desertification in Jordan using remote sensing and bio-indicators.( Funded by NARTO SPS, $ 21,000). |
| Industry collaborations | - |
| Patents | - |
| Important publications over the last 5 years | 1. Al-Mallah, J., R. Tahhan and S. Khresat. 2020. Quality of fresh plant residue affects sequestration of residue derived organic material by humic acid, Eurasian Journal of Soil Science, 9:222-230.<br>2. Zeitoun, M., C. Abdallah, M. Dajani, S. Khresat, H. Elaydi and A. Alfarra. 2019. The Yarmouk Tributary to the Jordan River I: Agreements Impeding Equitable Transboundary Water Arrangements, Water Alternatives, 12:1064-1094.<br>3. Zeitoun, M., M. Dajani, C. Abdallah, S. Khresat and H. Elaydi. 2019. The Yarmouk Tributary to the Jordan River II: Infrastructure Impeding the transformation of equitable transboundary Water Arrangements, Water Alternatives, 12:1095-1122. |
| Activities in specialist bodies over the last 5 years | Organization Role Period<br>Agricultural Engineers Association (AEA) Member<br>Soil Science Society of America (SSSA) Member<br>European Geophysical Union (EGU) Member<br>Sam Steele Society (USA) Member<br>The Jordanian Society for Desertification Control & Badia Development |

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|---|---|
| Name | Naji Khalaf Ali Al-Mefleh |
| Post | Associate Professor of irrigation and water |
| Academic career | Ph.D. Ball State University, Indiana, USA 2004<br>M.Sc. South Dakota State University, USA 1997<br>B.Sc. Agricultural University, Faisalabad 1983 |
| Employment | Associate Professor Jordan University of Science and Technology 2004-now |
| Research and development projects over the last 5 years | - Impact of irrigation water quality and envelope materials around drip line on emitter performance under subsurface drip irrigation. 2015. JD 4525, Jordan University of Science and Technology (JUST).<br>- Assessment of Treated Wastewater Reuse in Drip Irrigation under Low-Pressure Condition. 2018. JD 2040, Jordan University of Science and Technology (JUST). |
| Industry collaborations | - |
| Patents | - |
| Important publications over the last 5 years | 1. N. K. Al-Mefleh, M Tadros, M. M. Abu-Zreig. 2019. The effect of supplemental irrigation from polyacrylamide-treated microcatchments on the growth of acacia saligna in dryland. Forest Science and Technology.1-6. Q2<br>2. N. K. Al,ÄêMefleh, O'badah F. Al-Raja. 2020. Impact of irrigation water quality and envelope materials around drip line on emitter performance in subsurface drip irrigation. Water and Environment Journal. 34:14-24. Q2<br>3. N. K. Al-Mefleh, I. Bashabsheh, S. Talozi, TA. Al-Issa. Field evaluation of the performance of different irrigation emitter types using treated wastewater. Water Quality Research Journal. 50 (3), 240-251. Q3 |
| Activities in specialist bodies over the last 5 years | Organization / Role / Period<br>Agricultural Engineers Association (AEA) / Member / 1985- now |

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|---|---|
| Name | Ragheb A. Tahhan |
| Post | Associate Professor of Environmental Microbiology |
| Academic career | Ph.D. University of Arizona, Tucson, AZ 1998<br>M.Sc. University of Jordan 1992<br>B.Sc. University of Jordan 1987 |
| Employment | Associate Professor Jordan University of Science and Technology 1998-now |
| Research and development projects over the last 5 years | - Soil Health As Influenced By Long-Term Irrigation with Treated<br>- Wastewater in Central Jordan Valley 2012-2017, 75000 USD.<br>- Olive-mill wastewater interactions with soil biological system, effects on Environment and soil health. 2019.<br>- Impact of Intensive agricultural practices in Jordan Valley on selected soil biological characteristics, 2016. |
| Industry collaborations | - |
| Patents | - |
| Important publications over the last 5 years | 1. Al-Mallahi, J., Tahhan, R., and , Khresat, S. 2020. Quality of fresh plant residue affects sequestration of residue derived organic material by humic acid. Eurasian Journal of Soil Science. 9:222 -230<br>2. Ammari, T. G., Tahhan, R., Al Sulebi, N., Tahboub, A., Ta'any, R. A. and Abubaker, S. 2015. Impact of intensive greenhouse production system on soil quality. Pedosphere. 25: 282-293. |
| Activities in specialist bodies over the last 5 years | Organization Role Period<br>Agricultural Engineers Association (AEA) Member 1992-now<br>Jordanian Standards and Metrology Organization Member 2015-now<br>(Permenant committee for water standards)<br>American Society of Microbiology Member 1996-now |

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|---|---|
| Name | Ammar Ali Ahmad Albalasmeh |
| Post | Associate Professor of Soil Physics |
| Academic career | Ph.D. University of California, Merced 2013<br>M.Sc. Jordan University of Science and Technology 2008<br>B.Sc. Jordan University of Science and Technology 2005 |
| Employment | Assistant Professor Jordan University of Science and Technology 2014-now |
| Research and development projects over the last 5 years | - Olive mill wastewater treatment produced from olive mills using Moringa seeds as a natural coagulant, 2017, 9400 USD.<br>- Modification and use of biochar derived from Jordanian olive waste for domestic and industrial wastewater treatment, 2016, 11300 USD.<br>- Effects of temperature and particle size on biochar yield from pyrolysis of agricultural residues, 2016, 15200 USD.<br>- Measuring total carbohydrate in soil using Sulfuric Acid-UV method, 2015, 16600 USD. |
| Industry collaborations | - |
| Patents | - |
| Important publications over the last 5 years | Total number is 20<br><br>1. Albalasmeh, A.A., E. Hamdan and M.A. Gharaibeh. 2021. Improving aggregate stability and hydraulic properties of Sandy loam soil by applying polyacrylamide polymer, Soil & tillage Research, 206:104821. Q1.<br>2. El Hanandeh, A., A.A. Albalasmeh, M.A. Gharaibeh and M. Ajlouni. 2020. Modification of biochar prepared from olive oil processing waste to enhance phenol removal from synthetic and olive mill wastewater, Separation Science and Technology https://doi.org/10.1080/01496395.2020.1794897 Q2.<br>3. Albalasmeh, A.A., M.A. Gharaibeh, O. Mohawesh, M. Ajlouni, M. Quzaih, M. Masaad and A. El Hanandeh. Characterization and Artificial Neural Networks Modelling of methylene adsorption of biochar derived from agricultural residues: effect of biomass type, pyrolysis temperature, particle size, Journal of Saudi Chemical Society https://doi.org/10.1016/j.jscs.2020.07.005 Q1.<br>4. Albalasmeh, A.A., M.A. Gharaibeh, M.Z. Alghzawi, R. Morbidelli, C. Saltalippi, T. Ghezzehei and A. Flammini. 2020. Using wastewater in irrigation: the effects on infiltration process in a clayey soil, Water, 12(4), 968, https://doi.org/10.3390/w12040968 Q1. |

| Activities in specialist bodies over the last 5 years | Organization | Role | Period |
|---|---|---|---|
| | Agricultural Engineers Association (AEA) | Member | 2005-now |
| | Soil Science Society of America (SSSA) | Member | 2010-now |
| | American Geophysical Union (AGU) | Member | 2012-now |
| | European Geophysical Union (EGU) | Member | 2013-now |