

محفوظ "محمد وحيد" أبو زنط

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**NATIONALITY** Jordanian

**DOB** 15 December 1955

**EDUCATION**

1986-1989 The University of Arizona, Tucson, Ph.D., Range Management  
1983-1985 Washington State University, Pullman, M.Sc., Range Management  
1975-1979 The University of Jordan, Amman, B.Sc., Animal Production and Protection

**EXPERIENCE**

**Administration**

2004-2005 Head, Department of Animal Production, Faculty of Agriculture, The University of Jordan, Amman, Jordan.

1999-2000 Head, Department of Animal Production, Faculty of Agriculture, The University of Jordan, Amman, Jordan.

**Academic**

2005 Professor, Department of Animal Production, School of Agriculture, The University of Jordan, Amman, Jordan.

1998-2005 Associate Professor, Department of Animal Production, Faculty of Agriculture, The University of Jordan, Amman, Jordan.  
Associate Professor, Department of Lands, Water and Environment, Faculty of Agriculture, The University of Jordan, Amman, Jordan (Joint Appointment).

1990-1998 Assistant Professor, Department of Animal Production, Faculty of Agriculture, The University of Jordan, Amman, Jordan.

1986-1989 Research Assistant, Range Division, School of Renewable Natural Resources, The University of Arizona, Tucson, Arizona, USA.

1984-1985 Research Assistant, Department of Forestry and Range Management, Washington State University, Pullman, Washington State, USA.

1980-1983 Research and Teaching Assistant, Department of Animal Production, Faculty of Agriculture, The University of Jordan, Amman, Jordan.

**SABBATICAL LEAVE**

2019-2020 Food and Agriculture Organization for the United Nations

2010-2011 Jordan University Station for Dryland Research (JUSDR), Muwaqer, Jordan

2005-2006 The Royal Society for the Conservation of Nature (RSCN), Jordan

**RESEARCH, DEVELOPMENT, and CONSULTANCY INTEREST**

- Revegetation of degraded grazing resources in arid regions
- Reuse of treated water and biosolids in agriculture
- Monitoring and evaluation of rangeland projects
- Community-based grazing management
- Characterization of pastoral small ruminant production systems
- Assessment of animal products value chains
- Development of policies and strategies for sustainable production of rangelands in arid regions

## COURSES (TUTOR)

Undergraduate		Graduate	
602101	Principles of Animal Production	602704	Range Animal Nutrition
602272	Management of Natural Rangelands	602789	Production Systems of Small Ruminants
602373	Grazing Management	602913	Organic Livestock Production
602474	Range Improvement	602971	Rangeland Monitoring and Evaluation
602491	Seminar in Animal Production		

### **Courses previously taught**

602382	Animal Feeds and Feeding
602483	Feed Analysis
631231	Production of Forage Crops

## SKILLS

- **IT:** Microsoft office, windows platform, statistical packages....
- **Languages:** Excellent command of English (both written and spoken)

## PUBLICATIONS

### Published Research Papers in Refereed Journals

- 2020 **Abu-Zanat**, M, A. Al-Ghaithi, M. Akash. 2020. Effect of planting *Atriplex* seedlings in micro-catchments on attributes of natural vegetation in arid rangelands. *Journal of Arid Environments* (accepted).
- 2020 **Abu-Zanat**, M., H. Titi and M. Akash. 2020. Effect of planting forage shrubs and barley on attributes of natural vegetation in arid rangelands. *Fresenius Environmental Bulletin*, 29(6): 4777-4788.
- 2008 Al-Bakri, T.J. Mohammad Ajlouni, and M.W.W. **Abu-Zanat**. 2008. Incorporating land use mapping and participation in Jordan: An approach to sustainable management of two mountainous areas. *Mountains Research and Development*, 28(1): 49-57.
- 2007 Al-Bakri, T.J. and M.W.W. **Abu-Zanat**. 2007. Correlating vegetation cover and biomass of a managed range reserve with NDVI of SPOT-5 HRV. *Jordan Journal of Agricultural Sciences*, 3(1): 26-40.
- 2006 **Abu-Zanat**, M.W.M. and M.J. Tabba'a. 2006. Effect of feeding *Atriplex* browse to lactating ewes on milk yield and growth rate of their lambs. *Small Ruminant Research*, 64: 152-161.
- 2005 **Abu-Zanat**, M.W. M. 2005. Voluntary intake and digestibility of saltbush by sheep. *Asian-Australasian Journal of Animal Science*, 18(2): 214-220.
- 2005 **Abu-Zanat**, M.W.M. and N.H. Samarah. 2005. Physical and chemical treatments for enhancing seed germination of Oldman saltbush (*Atriplex nummularia*). *African Journal of Range and Forage Science*, 22(2): 141-145.
- 2005 **Abu-Zanat**, M.W. M., H. A. Miqdady and M.J. Tabba'a. 2005. Production systems of small ruminants in the Middle Badia of Jordan. *Dirasat, Agricultural Sciences*, 32(2): 205-214.
- 2005 Samarah, H.N. and M.M.W. **Abu-Zanat**. 2005. Effect of seed maturation and hardseededness-breaking treatments on seed germination in *Vicia monantha*. *Agricoltura Mediterranea*, 135:44-51.
- 2004 **Abu-Zanat**, MW. M. and D.D. Badameh. 2004. Forage productivity of desert rangelands in response to Biohumus. *Dirasat, Agricultural Sciences*, 31(2): 169-177.
- 2004 **Abu-Zanat**, M.W.M. and M.J. Tabba'a. 2004. Effect of drought on feed resources and performance of small ruminants in the Northern Badia of Jordan. *Dirasat, Agricultural Sciences*, 31(3): 347-354.
- 2004 **Abu-Zanat**, M., G. B. Ruyle and N.F. Abdel-Hamid. 2004. Increasing range production from fodder shrubs in low rainfall areas. *J. of Arid Environments*, 59: 205-216.
- 2004 Alazzah, Y.A. and M.M.W. **Abu-Zanat**. 2004. Impact of feeding saltbush (*Atriplex sp.*) on some mineral concentrations in the blood serum of lactating Awassi ewes. *Small Ruminant Research*, 54: 81-88.
- 2003 **Abu-Zanat**, M., F. M. Al-Hassanat, M. Alawi and G. B. Ruyle. 2003. Oxalate and tannins assessment in *Atriplex halimus* L. and *A. nummularia* L. *J. Range. Manage.* 56:369-373.
- 2003 **Abu-Zanat**, M., F. M. Al-Hassanat, M. Alawi and G.B. Ruyle. 2003. Mineral assessment in *Atriplex halimus* L. and *Atriplex nummularia* L. in the arid region of Jordan. *African J. of Range and Forage Science*. 20 (3):1-5.
- 2003 **Abu-Zanat**, M. 1998. Effect of clipping on green forage, hay and grain production from two barley cultivars grown under irrigation in the Jordan Valley. *Dirasat, Agricultural Sciences*, 25(1): 105-112.

- 1998 **Abu-Zanat**, M.; A. Osman and M.J. Tabba'a. 1998. Seed bank assessment on heavily grazed Mediterranean grasslands in Jordan. *Dirasat, Agricultural Sciences*, 25(2): 195-202.
- 1998 Al-Naber, G.; O. Kafawin and M. **Abu-Zanat**. 1998. Response of *Atriplex nummularia* plantlets to stimulated drought and salinity conditions *In Vitro*. *Dirasat, Agricultural Sciences*, 25(1): 38-43.
- 1998 Al-Naber, G.; Kafawin and M. **Abu-Zanat**. 1998. Germination and micro-propagation of *Atriplex nummularia* via tissue culture (Research Note). *Dirasat, Agricultural Sciences*, 25(1): 44-48.
- 1998 Al-Shawahneh, N., O. Kafawin; M. **Abu-Zanat** and N. Hadidi. 1998. Effect of land use on the seed banks of rangeland soils in arid environments. *Dirasat, Agricultural Sciences*, 25(3): 380-392.
- 1997 **Abu-Zanat**, M. 1997. Using natural zeolites in the fattening rations of Awassi lambs. *Dirasat, Agricultural Sciences*, 24(2): 268-273.
- 1996 El-Shakhret, J.K.; M.Y. Harb; M. **Abu-Zanat** and M.J. Tabba'a. 1996. Effect of feeding different levels of concentrate on voluntary intake of straw on productive and reproductive performance of Awassi sheep in Jordan Valley. *Dirasat, Agricultural Sciences*, 23(2): 118-130.

#### Other Published Articles and Fact Sheets

- 2015 **Abu-Zanat**, M and Louhaichi, M. 2015. Managing Rangelands: promoting sustainable shrub species (*Salsola Vermiculata L*). Pastoral and Agro-Pastoral Systems. International Center for Agriculture Research in Dry Lands (ICARDA).
- 2015 **Abu-Zanat**, M and Louhaichi, M. 2015. Managing Rangelands: promoting sustainable shrub species (*Atriplex halimus L*). Pastoral and Agro-Pastoral Systems. International Center for Agriculture Research in Dry Lands (ICARDA).
- 2012 **Abu-Zanat**, M. and Hamdan, I. 2012. What research do we need to increase agricultural production? Stakeholders' perspectives. *The Futures of Agriculture*. Brief No. 06. Rome: Global Forum on Agricultural Research (GFAR).
- 2006 Al-Omari, A., **Abu-Zanat**, M. and Fayyad, M. 2006. "Re-use of treated wastewater for irrigation". Proceedings of the *Regional EMWater Project Conference on Efficient Management of Wastewater Treatment and Re-Use in the Mediterranean Countries*, Amman-Jordan, October 30 to Nov. 1, 2006, p. 41.
- 2005 **Abu-Zanat**, M. and Amri, A. 2005: Processes of community involvement for promoting rangeland agrobiodiversity. Promoting Community-driven Conservation and Sustainable Use of Dryland Agrobiodiversity. ICARDA, Aleppo, Syria.

#### BOOKS

- 2017 **Abu-Zanat**, M.W.M. 2017. Techniques for Rehabilitation of Degraded Rangelands in the Arid Regions\*. Faculty of Agriculture, The University of Jordan, Amman, Jordan, (in press).
- 2001 **Abu-Zanat**, M.W.M. 2001. Animal Feeds and Feeding\*. 1<sup>st</sup> Edition, Jerusalem Open University, Amman, Jordan (526 Pages).
- 1996 Doumi, M.F.; S. Abdul-Rahim; M. **Abu-Zanat**; F.M. Faris; M.J. Tabba'a and J. Maaytah. 1996. Animal Production, Theoretical Part for the Second Secondary Class\*. General Directorate of Curricula, Ministry of Education, Jordan.
- 1996 Jaber, M.; F.M. Doumi; M. **Abu-Zanat**; F.M. Faris; M.J. Tabba'a and J. Maaytah. 1996. Animal Production, Practical Part for the Second Secondary Class\*, Directorate of Curricula, Ministry of Education, Jordan.
- 1995 **Abu-Zanat**, M.; S. Abdul-Rahim; M.J. Tabba'a and J. Maaytah. 1995. Animal Production, Theoretical Part for the First Secondary Class\*. General Directorate of Curricula, Ministry of Education, Jordan.
- 1995 Jaber, M.; M. **Abu-Zanat**; J. Maaytah and M.J. Tabba'a 1995. Animal Production, Practical Part for the First Secondary Class\*. General Directorate of Curricula, Ministry of Education, Jordan.

#### CHAPTER(S) IN BOOKS

- 1992 **Abu-Zanat**, M. and T. Abu-Sharar. 1992. Deterioration of the Ecological Balance as a Result of Human Activity. P. 58-79. In: A Battikhi (ed.), *Arid and Semi-Arid Regions*. UNESCO, Jordan.

- 1992 **Abu-Zanat**, M. 1992. Stockbreeding Systems\*. P. 267-297. In: A. Battikhi (ed.), Arid and Semi-Arid Regions. UNESCO, Jordan.
- 1992 **Abu-Zanat**, M. 1992. Linking up of Systems of Cultivation and Systems of Stockbreeding\*. P. 299-318. In: A. Battikhi (ed.), Arid and Semi-Arid Regions. UNESCO, Jordan.

\*Arabic language

## FIELD MANUALS

- 2009 Abu-Zanat, M.W.M. 2009. A Field Manual for Sampling Vegetation Attributes of Arid Rangelands. Faculty of Agriculture, The University of Jordan, Amman, Jordan, 31 pp.
- 2009 Abu-Zanat, M.W.M. 2009. Training on Characterization of Pastoral Animal Production in Jordan Badia. Faculty of Agriculture, The University of Jordan, Amman, Jordan, 13 pp.

## WORKSHOPS

- 2019 Sustainable Rangeland Management Practices in Jordan Badia. Expert Meeting for Developing a Rangeland Restoration/ Rehabilitation Toolbox. 16-18 April, 2019. Hammamet south Tunisia.
- 2019 Measuring Attributes of Natural Vegetation in Rangelands. 7-9 April, 2019. Shaumari Wildlife Reserve. Jordan.
- 2017 Proper Planting of Forage Shrubs in Micro-catchments in Jordan Badia. Badia Restoration Program/ Ministry of Environment and Ministry of Agriculture. November 14, 2017. Muwaqqer Revegetation Site, Jordan.
- 2015 Sustainable Environment and Economic Development (SEED). Ministry of Environment and USAID. Wild Jordan, Amman, 5<sup>th</sup> November 2015.
- 2015 Rangeland Workshop: Sustainable Governance of the Rangelands in Jordan. Ministry of Environment and GIZ, Crowne Plaza Hotel, Amman, 1<sup>st</sup> November 2015.
- 2015 Stakeholder Consultation Workshop on Country Programming Framework for Jordan (2016-2020), Amman, 17<sup>th</sup> September 2015.
- 2015 Investment Options in the Rangelands of Jordan: Sustainable Rangeland Management (SRM) and Ecological Livestock Production. International Union for the Conservation of Nature, IUCN-ROWA, Amman Office, Jordan, 5<sup>th</sup> May 2015.
- 2014 Building the capacity of the National Desertification Combat Committee in PRAIS reporting. The Ministry of Environment and The International Union for the Conservation of Nature (IUCN-ROWA). Sharm Al-Sheikh, Egypt, 4-7 September 2014.
- 2014 Review and complete the second draft of the 5<sup>th</sup> CBD NR by the national expert group. The Ministry of Environment, IUCN-ROWA. The fifth National Report for the Convention on Biodiversity. Aqaba 28-29 August.
- 2014 Introduction to alley cropping in rangelands and cereal production zone. Agro-ecological Monitoring Training Workshop, ICARDA and Oregon State University, Amman, 6-12 April.
- 2014 Ecological characterization for introducing alley cropping. Agro-ecological Monitoring Training Workshop, ICARDA and Oregon State University, Amman, 6-12 April.
- 2014 Desirable attributes of forage shrubs for alley cropping. Agro-ecological Monitoring Training Workshop, ICARDA and Oregon State University, Amman, 6-12 April.
- 2014 Seedlings production of forage shrubs for alley cropping. Agro-ecological Monitoring Training Workshop, ICARDA and Oregon State University, Amman, 6-12 April.
- 2013 Stakeholder Consultation Meeting-The Development of Sub-Sector Strategy for Water Harvesting in Jordan. FAO Project "Coping with Water Scarcity-the Role of Agriculture-Phase III". Landmark Hotel, Amman, Jordan, 25 November 2013.
- 2012 EU-ENPARD Projects Prioritization and Selection Workshop. European Neighborhood Program on Agriculture and Rural Development (ENPARD). Landmark Hotel, Amman, Jordan, 7 July 2012.
- 2012 The Future of Agriculture in West Asia and North Africa (WANA) region. Write Foresight Workshop. Global Forum on Agricultural Research (GFAR). Biodiversity International, Rome, Italy, 26-28 June 2012.

- 2012 Expert Meeting Workshop to Review the Proposal for Establishing the GFAR Global Agricultural Foresight Academy: African Chapter. Global Forum on Agricultural Research (GFAR) and Forum for Agricultural Research in Africa (FARA), Castle knock Hotel and Country Club, Dublin, Ireland, 28 May-1 June 2012.
- 2011 Training Workshop on Community-based Grazing Management. Sustainable Management of Marginal Drylands Project (SUMAMAD). The Royal Society for the Conservation of Nature (RSCN). Dana Reserve Headquarters, 2 October 2011.
- 2011 Training Workshop on Community-based Grazing Management. UNDP Small Grant Projects. The Royal Society for the Conservation of Nature (RSCN). Mujib Resort, 1 October 2011.
- 2011 Future Outlook for Feed Production in Jordan. Development of Forage Crop Production in Jordan Workshop. Sustainable Utilization of Treated Wastewater for Income Generation and Poverty Alleviation in the East Part of Zarqa City Project. Jordanian Society for Organic Farming. Amman, Professional Syndicate Complex, 21-22 September 2011.
- 2011 Concentration of Heavy Metals in Water, soils, Plants and Milk in Khirbet As Samra Area: A case Study. Development of Forage Crop Production in Jordan Workshop. Sustainable Utilization of treated Wastewater for Income Generation and Poverty Alleviation in the East Part of Zarqa City Project. Jordanian Society for Organic Farming. Amman, Professional Syndicate Complex, 21-22 September 2011.
- 2011 Training Workshop on Principles of Grazing Management. Integrated Ecosystem Management in the Jordan Rift Valley Project. The Royal Society for the Conservation of Nature (RSCN). Ajlun, 5-8 September 2011.
- 2010 Vulnerability to Climate Change in Agricultural Systems Workshop Part I. Word Bank and National Center for Agricultural Research and Extension. Holiday Inn Hotel, Amman, Jordan, 6-7 October 2010.
- 2010 Climate Change Modeling Capacity Building Workshop. Integrated Ecosystem Management in the Jordan Rift Valley Project. The Royal Society for Conservation of Nature (RSCN). Amman, 15-17 April 2010.
- 2009 Participatory Approach for Management of Communal Grazing Resources. Sustainable Management of Marginal Drylands Project (SUMAMAD) and The Royal Society for the Conservation of Nature (RSCN). Dana Reserve Headquarters, 19 November 2009.
- 2009 Co-management of Grazing Resources. Conservation of Medicinal and Herbal Plants Project in Jordan. The Royal Society for the Conservation of Nature (RSCN) and Bata Leadership and Coaching Transformation International (Lead Act). Amman Panorama, Dead Sea, 23-24 October 2009.
- 2009 Methodology Standardization of Data collection and Analysis of the Baseline Study. Sampling Vegetation Attributes of Arid Rangelands. The Ministry of Environment, Badia Restoration Program, 5-6 July 2009. National Center for Agricultural Research and Extension, Amman, Jordan.
- 2009 Discussion of "Terms of Reference for Conducting the Baseline Study at the Demonstration Site within the Framework of Badia Restoration Program", Environmental Compensation Unit, Ministry of Environment, 7 April 2009, National Center for Agricultural Research and Extension, Baqaah, Jordan.
- 2008 Inclusion of Medicinal and Herbal Plants Concepts in Schools' Curriculums. The Royal Society for the Conservation of Nature, 25-26 November 2008. Wild Jordan, Amman, Jordan.
- 2008 "Restoration of Terrestrial Ecosystems in Jordan Badia: Overview" Workshop. United Nations Compensation Council (UNCC), Ministry of Environment, and ENGICON, 10 April 2008, Ministry of Environment, Amman-Jordan.
- 2007 Communal Management and Optimization of Mechanized Micro-catchment Water Harvesting for Combating Desertification in the East Mediterranean Region (Vallerani Water Harvesting Project), Project Final Workshop, ICARDA Headquarters, Tel Hadya, Syria, 2-3 December, 2007.
- 2006 The National Seminar on Drylands Issues. SUMAMAD Project, Management of Grazing Lands in Arid Regions, Dana Nature Reserve, 3 December 2006. RSCN, Jordan.
- 2006 Wild Herbs Conservation Workshop. Ministry of Planning and The Royal Society for the Conservation of Nature, 20-21 June 2006, Ajlun Reserve, Jordan.
- 2006 Training workshop on methods for sampling vegetation attributes. The Royal Society for the Conservation of Nature. 22-28 April 2006, Shaumari Wildlife Reserve, Azraq, Jordan.

- 2006 Training workshop on methods for sampling vegetation attributes. National Center for Agricultural Research and Technology Transfer (NCARTT) and International Center for Agricultural Research in Dry Areas (ICARDA). 27-31 March 2006, NCARTT, Jordan.
- 2004 The experience of Syrian Agrobiodiversity project in community approach. Community Approach Training Workshop. 25-29 July 2004. ICARDA Office, Amman.
- 2003 Promoting feed blocks for nourishing sheep and goat flocks in Sweida Governorate. Ministry of Agriculture and Agrarian Reform, General Commission of Scientific Agricultural Research, Agrobiodiversity Project in Syria. 5-8 November 2003, Sweida, Syria.
- 2002 Degradation of natural grazing resources in Jordan: causes and indicators. Environmental Indicators of Land Resources Degradation Workshop. The General Corporation for Environmental Protection (GCEP) and UNDP. 29<sup>th</sup> October 2002. Grand Palace Hotel, Amman, Jordan.
- 2002 Technical options for promoting Agrobiodiversity on rangelands. The 4<sup>th</sup> Technical and Planning Regional Meeting of Conservation and Sustainable Use of Dryland Agrobiodiversity in Jordan, Lebanon, Syria and Palestinian Authority. 13-15 September 2002. SAS Radisson Hotel, Amman, Jordan.
- 2002 Special training workshop in methodology for establishing databases of rangelands and livestock. Ministry of Agriculture and Food and Agriculture Organization (FAO). 17-18 April 2002. Mafraq, Jordan.
- 2001 Development of rangelands in Arab World. Arab Center for Studies of Arid and Dry Lands (ACSAD) and Ministry of Agriculture in Jordan. 12-15 November 2001.
- 2001 Property rights and range management systems. National Center for Agricultural Research and Technology Transfer (NCARTT), ICARDA and Ministry of Agriculture. 29-30 April 2001. Baqaah, Jordan.
- 1998 Special training workshop in techniques for development of rangelands. Department of Irrigation and Water Uses, Ministry of Agriculture and Agrarian Reform, Damascus, Syria. 19-30 September 1998. Sponsored by UNDP and Syrian Ministry of Agriculture.
- 1998 Sheep Production Systems in Jordan. Previous and Current Research in the Badia of Jordan. 30-31 March 1998, Al Al-Bait University, Mafraq, Jordan.
- 1998 Development of Feed Resources in Tal-Hassan. Previous and Current Research in the Badia of Jordan. 30-31 March 1998, Al Al-Bait University, Mafraq, Jordan.
- 1997 Livestock Research Priorities in Jordan. Consultation on Setting Livestock Research Priorities in West Asia and North Africa (WANA). Aleppo, Syria, 12-16 November 1997. Sponsored by ILRI and ICARDA.
- 1997 Techniques for Measuring the Productivity of Rangelands. Workshop on Improving Sheep and Goat Production in Arid and Semi-Regions. Sponsored by ACSAD and Ministry of Agriculture. 5-12 April 1997, Amman, Jordan.
- 1996 Production and Utilization of Fodder Shrubs. Research Proposal Submitted to System-Wide Livestock Initiative (SLI) Project "Production and Utilization of Multi-Purpose Fodder Shrubs and Trees in West Asia, North Africa and the Sahel". Sponsored by ICARDA and SLI. 6-10 February 1996, Aleppo, Syria.
- 1996 Jordan Cooperative Research Program for Sustainable Development of Mediterranean Arid and Semi-Arid Areas. Expert Consultation for the Creation of a Cooperative Research Program on Sustainable Development of Mediterranean Arid and Semi-Arid Areas. Sponsored by FAO/CIHEAM. 14-17 April 1996, Settat, Morocco.
- 1995 Establishment of Fodder Shrubs on Rangelands of Jordan. Regional Planning Workshop. Sponsored by International Center for Agricultural Research in the Dry Areas (ICARDA). 3-6 July 1995, Tunis, Tunisia.
- 1995 Production Systems of Small Ruminants within the Different Agro-ecological Zones of Jordan. Livestock Research Priorities Workshop. Sponsored by ICARDA and ILRI. 9-10 November 1995, Amman, Jordan.
- 1993 Maintenance and Development of Rangelands in Jordan and their Role against Desertification. Maintenance and Development of Rangelands in the Arab World and their Role against Desertification Workshop. 3-6 April 1993, Amman, Jordan.\*
- 1993 Grazing Management. Workshop on Development and Improvement of Rangelands in Jordan. Sponsored by Jordan Ministry of Agriculture and Regional Rangelands Development Project (UNDP-RAB-90-001). 14-20 August 1993, Amman, Jordan.\*
- 1993 Factors Influencing the Performance of Grazing Sheep: A Review Paper. Grazing Management Workshop. Sponsored by ICARDA. 28-30 November 1993, Amman, Jordan.

- 1992 Principles of Managing Grazing Animals. Workshop on Managing Natural Rangelands in Jordan. Sponsored by GTZ (German Technical Cooperation). 16-21 May 1992, Amman, Jordan.
- 1992 Grazing Systems. Workshop on Managing Natural Rangelands in Jordan. Sponsored by GTZ (German Technical Cooperation). 16-21 May 1992, Amman, Jordan.
- 1992 Rangeland Development and Improvement in Jordan. Workshop on Agriculture and Environment. Sponsored by Jordanian Society for the Control of Environment Pollution (JSCEP). 9-10 August 1992, Amman, Jordan.

#### **TRAINING COURSES (Tutor)**

- 2016 Determination of grazing capacity for planted sites with forage shrubs in the Badia of Jordan. The Badia Restoration Program, Ministry of Environment, Safawi, 1<sup>st</sup> of December 2016.
- 2014 Monitoring of planted forage shrubs in micro-catchments. Badia Restoration Program/Ministry of Environment. 23-27 November 2014, Faculty of Agriculture, The University of Jordan, Amman, Jordan.
- 2014 Measuring vegetation attributes. New Techniques for Sustainable Sheep and Goat Production Training Course. ICARDA and JICA (Japan International Corporation Agency). 26 January-6 February 2014. Amman, Jordan.
- 2014 Determination of grazing capacity. New Techniques for Sustainable Sheep and Goat Production Training Course. ICARDA and JICA (Japan International Corporation Agency). 26 January-6 February 2014. Amman, Jordan.
- 2007 Principles of Grazing Management. JICA (Japan International Corporation Agency) Training Course on Water Harvesting. 7-30 May 2007, Tal-Hadeya, ICARDA, Aleppo, Syria.
- 2005 Training Course on the Collection of Database Related to Pastoral Communities: Questionnaire Design, Coding and Data Analysis. The Royal Society for the Conservation of Nature. 15 September–15 October 2005, Mujib Nature Reserve, Faqu', Karak, Jordan.
- 2003 Options for improving degraded rangelands in dry areas. Rangeland and Livestock Management Regional Training Course. Sponsored by ICARDA, 2-6 March 2003, Amman, Jordan.
- 2003 Options for promoting agrobiodiversity on rangelands in dry areas. Rangeland and Livestock Management Regional Training Course. Sponsored by ICARDA, 2-6 March 2003, Amman, Jordan.
- 2001 Grazing management training course. Conservation and Sustainable Use of Dry Land Agrobiodiversity Project in Jordan. 12-13 June, 2001, Amman, Jordan.
- 1995 Range animal nutrition. Range Management Training Course. Sponsored by ICARDA. 11-16 March 1995, Amman, Jordan.
- 1995 Estimation of utilization. Range Management Training Course. Sponsored by ICARDA. 11-16 March 1995, Amman, Jordan.
- 1995 Range plant physiology and morphology. Range Management Training Course. Sponsored by ICARDA. 11-16 March 1995, Amman, Jordan.
- 1995 Grazing management: A review paper. Feeding Value of Mediterranean Ruminant Feed Resources, Advanced Training Course. Sponsored by Mediterranean Agronomic Institute of Zaragoza (CIHEAM-IAMZ) and ICARDA. 12-23 March 1995, Aleppo, Syria.
- 1994 Diet selection by grazing animals. Sheep Management and Nutrition Course. Sponsored by ICARDA. 12-22 April 1994, Amman, Jordan.

## CONFERENCES/TEHNIICAL AND EXPERT MEETINGS/SCIENTIFIC DAYS/SEMINARS

- 2017 Official Launching of Jordan's First Biennial Update (FBUR) Report. Al Hussien Youth City, 29<sup>th</sup> October 2017.
- 2014 The Brilliance of Hima: The Story of Dryland Restoration. The International Union for the Conservation of Nature (IUCN). Amman, 6-7 May 2014.
- 2013 CRP Dryland Systems Tafilah-Salamyeh kickoff Meeting. International Center for Agricultural Research in Dry Areas (ICARDA). 12-13 November, 2013, Holliday Inn Hotel, Amman, Jordan.
- 2013 International Conference: European Agricultural Research towards greater impact on Global Challenges. Egmont Palace, Brussels, Belgium, 3-6 June 2013.
- 2012 What research we need to increase agricultural production in the WANA region? Stakeholders' perspectives. Pre-Conference Inter-regional Forum Meeting for the Second Global Conference on Agricultural Research for Development (GCARD). Association of Agricultural Institutes in the Near East and North Africa (AARINENA). 28 October to 1 November 2012, Punta del Este, Uruguay.
- 2012 AARINENA activities on enhancing food security and reducing vulnerability to climate change. Pre-Conference Inter-regional Forum Meeting for the Second Global Conference on Agricultural Research for Development (GCARD). Association of Agricultural Institutes in the Near East and North Africa (AARINENA). 28 October to 1 November 2012, Punta del Este, Uruguay.
- 2012 Third Steering Committee Meeting of The Agricultural Research for Development, Dimension of the European Research Area (ERA-ARD). Southern and Emerging economies Advisory Group (SeAG). 27-28 September 2012. Novotel Hotel, Den Haag, The Kingdom of Netherlands.
- 2011 Expert Meeting on Adaptation Measures to Climate Change in Jordan's Livestock Sector under the umbrella of Spain-funded Program on Adaptation to Climate Change to Sustain Jordan's MDG Achievements. Food and Agriculture Organization of the United Nations (FAO), 15-16 October 2011, Landmark Hotel, Amman, Jordan.
- 2011 Expert Consultation Meeting on: Livestock Activities in the Peri-urban Areas and their Impacts on Environment in the Oriental Near East. Sponsored by Food and Agriculture Organization of the United Nations (FAO), held from 14 to 16 June 2011, Faculty of Agriculture, The University of Jordan, Amman, Jordan.
- 2011 Noor Al Hussein Foundation and International Union for the Conservation of Nature (NHF-IUCN) Awareness Program for CBO's in Sabha and Dair Al Kahaf village. "Requirements for Rehabilitation of Degraded Rangelands", 1 May 2011, Anaqeed Al Khair Cooperative, Rawdat Al Meer Ali, Mafraq Governorate, The Hashemite Kingdom of Jordan.
- 2011 Noor Al Hussein Foundation and International Union for the Conservation of Nature (NHF-IUCN) Awareness Program for CBO's in Sabha and Dair Al Kahaf village. "Co-management of Rangelands", 5 May 2011, The Eastern Mafraq Cooperative, Sabha, Mafraq Governorate, The Hashemite Kingdom of Jordan.
- 2008 The role of "Restoration of Terrestrial Ecosystems in Jordan Badia" Program in alleviating pressure on stockowners in the Badia. Kimpensky Hotel, 2008. Ministry of Environment and ENGICON. Amman, Jordan.
- 2007 The sixth Jordanian Agricultural Scientific Conference. The Role of Women in Pastoral Animal Production: A Case Study from Jordan. 91-2 April 2007, The University of Jordan, Amman, Jordan.
- 2007 The sixth Jordanian Agricultural Scientific Conference. Native Vegetation Assessment of Mujib Nature Reserve in Jordan, 91-2 April 2007, The University of Jordan, Amman, Jordan.
- 2007 The sixth Jordanian Agricultural Scientific Conference. Grazing Practices and Socioeconomics of Pastoral Communities Using the Natural Resources of Mujib Nature Reserve in Jordan. 91-2 April 2007, The University of Jordan, Amman, Jordan.
- 2007 The sixth Jordanian Agricultural Scientific Conference. The Concentration of Heavy Metals in Water, Plants, Soils and Animal Products in Khirbet As-Samra Area. 91-2 April 2007, The University of Jordan, Amman, Jordan.
- 2007 Third Annual Meeting for Vallerani Project (Communal Management and Optimization of Mechanized Micro-catchment Water Harvesting for Combating Desertification in the East Mediterranean Region. 28-29 March 2007, Damascus, Syria.

- 2007 Water Benchmarks of CWANA. Community-based Optimization of the Management of Scarce Water Resources in Central and West Asia and North Africa Project. Water Productivity and Modeling Thematic Group Meeting. 6-7 January 2007, Cairo, Egypt
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#### AFFILIATIONS

- Agricultural Engineers Association
- The Society for Range Management.
- Jordanian Society for the Control of Desertification and Badia Protection (JSCDBP).
- The Royal Society for the Conservation of Nature (RSCN).

#### AWARDS

Year	Award	Research
2004	Award of Arab Organization for Agricultural Development (AOAD), Scientific Research for Development and Management of Natural Rangelands	<i>"Increasing range production from fodder shrubs in low rainfall areas"</i> . Published in 2004 in Journal of Arid Environments, 59: 205-216.