



Scientific Research Support Fund



The Hashemite Kingdom
of Jordan



The University of Jordan

Jordan Journal of AGRICULTURAL SCIENCES

A Quarterly International Specialized Refereed Scientific Journal,
Supported by the Scientific Research Support Fund

Volume (21), No. (4), December 2025

ISSN 1815-8625

E_ISSN 2707-6415

(J. J. A. S.)

JORDAN JOURNAL OF AGRICULTURAL SCIENCES

Editor –in- Chief

Prof. Anas Abdelqader
The University of Jordan

Editorial Board

Prof. Monther T. Sadder
The University of Jordan

Prof. Adel H. Abdel-Ghani
Mutah University

Prof. Nida' M. Salem
The University of Jordan

Prof. Shawkat Qaseim Hailat
Jordan University of Science and
Technology

Prof. Tarek G. Ammari
Al-Balqa Applied University

Prof. Mohammad Salem AlTarawneh
Jerash University

Advisory Board

Prof. Mahmoud A Dwairi
Prof. Rida A Shibli
Prof. Ahmad Amri

The University of Jordan, Amman, Jordan
The University of Jordan, Amman, Jordan
International Center for Agricultural Research in the Dry Areas, ICARDA, Rabat,
Morocco

Prof. Omar M Kafawin
Prof. Mary Ann Lila
Prof. Salvatore Ceccarelli
Prof. Atsushi Tsunekawa
Prof. Wuletaw Tadesse Degu
Dr. Ahmad Alqudah
Dr. Theib Y Oweis
Prof. Nabil Q Hailat
Prof. Fred Cholick
Prof. Manzoor Qadir

The University of Jordan, Amman, Jordan
North Carolina State University, Kannapolis, NC, USA
Bioversity International, Corso Mazzini 256, 63100 Ascoli Piceno, Italy
Tottori University, Arid Land Research Center, 1390 Hamasaka, Tottori 680-0001,
International Center for Agricultural Research in the Dry Areas, ICARDA, Rabat,
Leibniz-Institute of Plant Genetics and Crop Plant Research (IPK) Germany, Germany
International Center for Agricultural Research in the Dry Areas, ICARDA, Amman,
Jordan University of Science and Technology, Irbid, Jordan
Oregon State University, Corvallis, OR, USA
United Nations University Institute for Water, Environment and Health (UNU-
INWEH), Ontario, Canada

Prof. Michael Baum
Prof. Hassan Machlab

Plant Breeding and Research Platform, ICARDA, Rabat, Morocco
International Center for Agricultural Research in the Dry Areas, ICARDA, Beirut,
Lebanon

Prof. Mosbah M kushad
Prof. Khalil W Al Maarri
Prof. Nizar J Haddad
Prof. Naji M Abuirmeileh

University of Illinois, Urbana, IL, USA
Damascus University, Damascus, Syria
The National Agricultural Research Center, NARC, Amman, Jordan
Jordan University of Science and Technology, Irbid, Jordan

Editorial Secretary and Production

Rana Rasem Abu-Laila

Language Editor

Prof. Naji M Abuirmeileh

The views expressed in this issue are those of the authors and do not necessarily reflect the views of the Editorial Board or the policies of the Ministry of Higher Education and Scientific Research or the Deanship of Scientific Research at the University of Jordan.

Publisher:

**The University of Jordan
Deanship of Scientific Research (DSR)
Amman 11942 Jordan
Tel: +962-6-5355000 - Ext: 25108
E-mail: JJAS@ju.edu.jo**

**National Deposit
(2302/2008/D)**

DSR Publishers ©2025



This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY-NC) license (<https://creativecommons.org/licenses/by-nc/4.0/>)

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means: electronic, mechanical, photocopying, recording or otherwise, without the prior written permission of the publisher.

Jordan Journal of
AGRICULTURAL SCIENCES
An International Refereed Research Journal

Table of Contents

Author(s)	Title	Pages
Nafiu Qudus Gbolahan Thompson Olaniran Anthony	Profitability Analysis of Greenhouse Tomato Production in Oyo State, Nigeria.	254 -264
Noura Jamal Samaher Sakkour	A study of the chemical composition of wheat bran, chickpea flour, and oat flour and their impact on the most important rheological properties of dough and sensory properties of functional biscuits.	265 -282
Malek A. Sraiwiy Hani M. Saoub Monther T. Sadder	Mediterranean saltbush (<i>Atriplex halimus</i> L.): A promising halophyte for combating desertification in Jordan.	283 -304
Novi Mayasari Diyin Aldida Syifa Muhammad Rifqi Ismiraj Hery Supratman	The Effects of Probiotics, <i>Anredera cordifolia</i> phytobiotic, and Their Combination on Performances, Metabolic Status, Gastrointestinal Characteristics, and Nutrient Digestibility in Broiler Chickens.	305 -325
Ala'a Abu Al dabaat Mohannad Abuajamieh Mohammad A. R. Jalal	Dietary Flaxseed Supplementation to Enhance Productivity and Omega-3 Enrichment in Laying Hens.	326 - 238
Olugbenga Omotayo, ALABI Jeremiah Samuel,ALUWONG Alkali Fazhi, YUSUF Moses Samuel,BASSEY Habibu Ndagi, ABUBAKAR Alhaji Abdullahi, YABAGI Comfort Kaka, YISA GANA Akinwumi Paul, ATTEH	Estimating the Multidimensional Poverty among Rice Producers in North Central, Nigeria.	239 - 351