

## **First Announcement**

### **13<sup>th</sup> International Conference on Development of Drylands: Converting Grey Areas into Green**

*Organized by*

**The International Dryland Development Commission (IDDC)**

*Hosted by*

**ICAR-Central Arid Zone Research Institute, Jodhpur, India**

*and*

**Arid Zone Research Association of India (AZRAI), Jodhpur, India**

*Co-sponsored by*

Indian Council of Agricultural Research, New Delhi, India; National Academy of Agricultural Sciences, New Delhi, India; Trust for Advancement of Agricultural Sciences, New Delhi, India; Arid Land Research Center, Japan; Arab Fund for Social and Economic Development, Kuwait; Bioversity International; Chinese Academy of Sciences; Food and Agriculture Organization; International Center for Agricultural Research in the Dry Areas; International Crops Research Institute for the Semi-Arid Tropics; International Fund for Agricultural Development ; International Food Policy Research Institute, International Water Management Institute; Japan International Cooperation Agency; Japan International Research Center for Agricultural Sciences ; OPEC Fund for International Development; World Agroforestry Centre; Asia-Pacific Association of Agricultural Research Institutions ; Association of Agricultural Research Institutions in Near East and North Africa; Central Asia and Caucasus Association of Agricultural Research Institutes; and Forum of the Americas on Agricultural Research and Technology Development.

*Supported by*

National Rainfed Area Authority (NRAA), New Delhi; Protection of Plant Varieties and Farmers Rights (PPV&FR), New Delhi; Indian Society of Dryland Agriculture (ISDA), Hyderabad; Range Management Society of India (RMSI), Jhansi; Indian Society of Plant Genetic Resources (ISPGR), New Delhi.

**Dates: 11-14 February 2019**

**Venue: Jodhpur, India**



## **13<sup>th</sup> International Conference on Development of Drylands: Converting Dry Areas from Grey to Green**

The 13<sup>th</sup> International Conference on Dryland Development, with the theme “Converting Dry Areas from Grey to Green”, will be organized by the International Dryland Development Commission (**IDDC**) and hosted by the ICAR-Central Arid Zone Research Institute (**CAZRI**) and Arid Zone Research Association of India (**AZRAI**), from 11-14 February 2019, at Jodhpur, India. It will be co-sponsored by Department of Agricultural Research and Education (**DARE**), New Delhi; Indian Council of Agricultural Research (**ICAR**), New Delhi; National Academy of Agricultural Sciences (**NAAS**), New Delhi; Trust for Advancement of Agricultural Sciences (**TAAS**), New Delhi; Arid Land Research Center (**ALRC**), Japan; Arab Fund for Social and Economic Development (**AFSED\***), Kuwait; Bioversity International; Chinese Academy of Sciences (**CAS**); Food and Agriculture Organization (**FAO\***); International Center for Agricultural Research in the Dry Areas (**ICARDA**); International Crops Research Institute for the Semi-Arid Tropics (**ICRISAT**); International Fund for Agricultural Development (**IFAD\***); International Food Policy Research Institute (**IFPRI**); International Water Management Institute (**IWMI**); Japan International Cooperation Agency (**JICA\***); Japan International Research Center for Agricultural Sciences (**JIRCAS\***); OPEC Fund for International Development (**OFID\***); World Agroforestry Centre (**WAC\***); and Asia-Pacific Association of Agricultural Research Institutions (**APAARI\***); Association of Agricultural Research Institutions in Near East and North Africa (**AARINENA\***); Central Asia and Caucasus Association of Agricultural Research Institutes, (**CACAARI\***); and Forum of the Americas on Agricultural Research and Technology Development (**FORAGRO\***).<sup>1</sup>

Drylands cover about 41% of earth's land area and are home to ~38% of world population. Majority (>90%) of the people of this ecosystem live in developing countries. With fragile natural resource base, achieving food security there has been a great challenge. With the threat of climate change looming large, and additional threat of massive out migration, the livelihoods of more than 2 billion people who live in these areas, will be further at risk. The efforts of research and development community and policy makers dealing with dry areas and aiming at sustainable management of natural resources have to be boosted in order to optimize adaptive mechanism and risk aversion elements for the dryland communities. Fast sharing of knowledge among all the stakeholders and capacity building will have to be an essential element of these efforts. Institutional reforms at the ecosystem level to bridge the divide in governance of different natural resources including water coupled with global commitment for greater coordination in legal, policy and management issues shall pave the path for sustainable livelihood security in drylands.

The International Dryland Development Commission (IDDC), an autonomous nongovernmental nonprofit organization established in 1978 by the individuals and institutions interested in and concerned about the sustainable development of dry areas, is promoting all aspects of dryland studies by fostering cooperation, collaboration and networking between various international, regional and national organizations. One of the important *modus operandi* of the

---

1\* To be confirmed

networking of IDDC has been to hold a major scientific conference at periodic intervals to provide opportunity to participants from around the world to exchange research results and experiences in dryland development and combating desertification. So far 12 such conference have been organized in last 40 years, in countries which have large areas under drylands. The 13<sup>th</sup> International Conference on Dryland Development, with the theme “Converting drylands from grey to green”, is being therefore organized by IDDC, 11-14 February 2019, in collaboration with ICAR-Central Arid Zone Research Institute (ICAR-CAZRI) and Arid Zone Research Association of India (AZRAI), at Jodhpur, India with an objective to share technical knowledge and innovations emerging from recent research and development efforts of various institutions and organizations around the world. This will help to prepare a roadmap for sustainable development of drylands areas in the face of changing climates and contribute to achieving sustainable development goals (SDGs) agreed to by the global community.

### **Themes of the Conference**

1. Impact of Climate Change in Drylands
2. Managing Land Degradation and Desertification
3. Soil Health Management, Carbon Sequestration and Conservation Agriculture
4. Water Harvesting and Improving Water Productivity
5. Conservation and Use of Agrobiodiversity in Drylands
6. Sustainable Intensification and Diversification in Drylands - Arid-horticulture, Aquaculture and Protected Agriculture
7. Livestock, Rangeland and Agroforestry Management
8. Post-harvest Management and Value Chain
9. Renewable Energy, Farm Mechanization and Automation
10. Role of Policies, Institutions and Markets in improving Livelihood Security and Resilience of Dryland Communities.

### **Papers**

Papers are invited focusing scientific and developmental aspects within the framework of the themes defined above. They should build on existing knowledge and have projections for future direction. They could be presented orally or as poster as decided by the Organizing Committee.

Persons planning to present paper at the Conference should submit a one page, single spaced abstract of 200-300 words by 30 September 2018 in the online registration form at the specified place.

Manuscript of accepted papers in detail must be submitted by 10<sup>th</sup> January 2019. Papers must be formatted as per the attached guidelines to the authors. The Conference language will be English.

The Proceedings containing the papers presented at the Conference will be edited by IDDC and AZRAI and published by IDDC by the end of July 2019. One copy of the proceedings volume would be provided to registered participants.

### **Registration**

The registration fee for foreign participants is US\$ 500 (US\$ 350 for students) for those registering by 30 November 2018. Fee for registration is US\$ 600 (US\$ 450 for students) from 1 January 2019. Fee for registration later than this date would be US\$ 700 (US\$ 550 for students). The registration

fee for participants from India is Rs 10,000/- (Rs 5000/- for students) for those registering by 30 November 2018. Fee for registration is Rs 12,000 (Rs 6,000 for students) by 1 January 2019. Fee for registration later than this date would be Rs 15,000 (Rs 7,000 for students). Fee for accompanying member is US\$ 100 (for foreign members) and Rs 5000/- (for Indian members). The registration fee covers local transportation in Jodhpur between the place of stay and the Conference hall and workshop, publications including the proceedings and Conference kit, and coffee/tea/snacks during the forenoon and afternoon breaks, and lunch for 4 days (11-14 February 2019). The host country will provide a welcome dinner on 10 February 2019.

**Plenary lectures and Special sponsored mini symposium:** The Conference plans to organize a series of plenary lectures by eminent speakers daily. Theme wise oral and poster presentations in different sessions will be organized concurrently. On request, there can be a half day mini symposium sponsored by collaborating scientific organizations. In addition, AZRAI will be organizing a half day mini symposium on 'Enhancing Resilience of Arid Lands'.

### **Conference Deadlines**

Receipt of abstracts	:	30 September 2018
Acceptance of papers / posters for presentation	:	25 October 2018
Early registration deadline	:	30 November 2018
Full manuscripts to be submitted to the organizers	:	10 January 2019

Persons interested in attending the Conference should complete the attached form and return it to the address indicated. This will ensure that additional information and registration material is timely provided to the prospective participants, and will assist in planning.

Spouse program will be arranged.

**Post Conference Tour:** It is proposed to organize a 2 day (15-16 February 2019) field tour for the delegates on payment basis to Jaisalmer, the golden city located in Thar Desert, India.

### **About Jodhpur**

Jodhpur, once the capital of the former princely state of Marwar, now is the second largest city of Rajasthan state and a popular tourist destination, featuring many palaces, forts and temples, set in the stark landscape of the Thar Desert. Jodhpur is geographically located at 26.2389° N, 73.0243° E. The city has a typical desert climate, dry and hot with a brief rainy season from late June to September. Although the average rainfall is around 400 mm, it fluctuates greatly. During February, you will experience pleasant weather with a pleasant average temperature of around 21°C or 69°F (ranging from 12°C to 29°C). The city is known as the "Sun City" for the bright and sunny weather as it enjoys all the year round. Jodhpur lies near the geographic centre of the Rajasthan state, which makes it a convenient base for travel in a region much frequented by tourists.

## International Advisory Committee

<b>Chairman</b>	<b>Prof. Dr. Adel El-Beltagy</b> , Chair, International Dryland Development Commission; Emeritus Professor, Arid Land Agricultural Graduate Studies and Research Institute (ALARI), Ain Shams University Cairo, Egypt
<b>Vice Chairman</b>	<b>Prof. T. Mohapatra</b> , Secretary, Department of Agriculture Research & Education, Government of India and Director General, Indian Council of Agricultural Research, New Delhi, India
<b>Member</b>	<b>Mr. Gilbert F. Haungbo*</b> , President of IFAD, Rome ( <b>or a designate</b> )
	<b>Sir Gordan Conway*</b> , Director of Agriculture for Impact and Professor of International Development, Imperial College, London
	<b>Dr. Ismail Serageldin</b> , Emeritus Director, Bibliotheca Alexandrina, Egypt
	<b>Dr. R.S. Paroda</b> , Chairman, Trust for Advancement of Agricultural Sciences, New Delhi
	<b>Prof. Ratan Lal</b> , Ohio State University, USA
	<b>Ms. Monique Barbut*</b> , Executive Secretary, United Nations Convention to Combat Desertification (UNCDD), Bonn, Germany
	<b>Mr. Raju Barwale*</b> , Managing Director, MAHYCO, Jalana, India
	<b>Dr. John Dixon</b> , ACIAR, Australia
	<b>Mr. Aly Abousabaa</b> , Director General, ICARDA, Beirut, Lebanon
	<b>Dr. David Bergvinson*</b> , Director General, ICRISAT Patancheru, India
	<b>Prof. Ayman Abou-Hadid</b> , Emeritus Professor, Arid Land Agricultural Graduate Studies and Research Institute (ALARI), Ain Shams University; Former Minister of Agriculture and Land Reclamation, Egypt
	<b>Prof. Atsushi Tsunekawa</b> , Professor, Arid Land Research Center (ALRC), Tottori, Japan
	<b>Prof. Tao Wang</b> , President, Lanzhou Branch of Chinese Academy of Sciences, Lanzhou, China
	<b>Ms. Maria Beatrix Giraudo*</b> , Former President AAPRESID, Senior Advisor to Government of Argentina
	<b>Acad. Prof. Aleksidze Gurum</b> , President, Georgian Academy of Agricultural Sciences, Tbilisi, Georgia
<b>Convener</b>	<b>Dr. Mohan Saxena</b> , Executive Secretary, IDDC, India

\* To be confirmed

## International Technical Program Committee

<b>Chairman</b>	<b>Dr. Mohan Saxena</b> , Executive Secretary, IDDC, India
<b>Co-Chair</b>	<b>Prof. Magdy Madkour</b> , Member IDDC Executive Board, Emeritus Professor, Arid Land Agricultural Graduate Studies and Research Institute (ALARI), Ain Shams University; Former President, ARC, Cairo, Egypt
	<b>Prof. Atsushi Tsunekawa</b> , Member IDDC Executive Board, Professor, Arid Land Research Center (ALRC), Tottori, Japan
	<b>Dr. Ch. Srinivasa Rao</b> , Member IDDC, Director, ICAR- National Academy of Agricultural Research Management (NAARM), Hyderabad, India
	<b>Prof. Donald C. Slack</b> , Member IDDC Executive Board, Professor, Agricultural, Biosystems Engineering, Water Management and Eco-Hydrology, The University of Arizona, Tuscan Arizona, USA
	<b>Dr. Manzoor Qadir</b> , Assistant Director, United Nations University – Institute for Water, Environment and Health (UNU-INWEH), Canada
	<b>Dr. Aliaa Rafea</b> , Professor, Women’s College, Ain Shams University,; Chair of Human Foundation, Cairo, Egypt
	<b>Dr. Usha Zehr*</b> , Director of Research, MAHYCO, Jalna, India
	<b>Dr. B. Venkateswarlu</b> , Vice Chancellor, VNMKV, Parbhani, India
	<b>Dr. K. Sammi-Reddy</b> , Director, ICAR-Central Research Institute for Dryland Agriculture, Hyderabad, India
	<b>Dr. R.V. Kumar</b> , Director, ICAR- Indian Grassland and Fodder Research Institute, Jhansi, India
	<b>Dr. N.K. Krishna Kumar*</b> , Coordinator, Bioversity International, New Delhi, India
	<b>Dr. Ashutosh Sarkar</b> , Regional Coordinator & Food Legume Breeder, ICARDA, New Delhi, India
	<b>Dr. A.K. Padhee*</b> , Director (Country Relations and Business Affairs), ICRISAT, New Delhi, India
	<b>Dr. P.K. Joshi</b> , Director, South Asia, IFPRI, New Delhi, India
	<b>Dr. Alok K. Sikka</b> , IWMI India Representative, New Delhi, India
<b>Convener</b>	<b>Dr. O.P. Yadav</b> , Director, ICAR-Central Arid Zone Research Institute, Jodhpur, India

\* To be confirmed

### National Advisory Committee

<b>Chairman</b>	<b>Dr. Panjab Singh</b> , President, NAAS, New Delhi
<b>Co-Chairman</b>	<b>Dr. B. Venkateswarlu</b> , Vice Chancellor, VNM KV, Prbhani
<b>Member</b>	<b>Dr. S.K. Chaudhary</b> , ADG (S&WM) ICAR, New Delhi
	<b>Dr. P.K. Ghosh</b> , ICAR, New Delhi
	<b>Dr. Alok K. Sikka</b> , IWMI India Representative, New Delhi
	<b>Dr. Suresh Pal</b> , Director, ICAR-National Institute of Agricultural Economics and Policy Research, New Delhi
	<b>Dr. Kuldeep Singh</b> , Director, ICAR-National Bureau of Plant Genetic Resources, New Delhi
	<b>Prof. K.P. Singh</b> , Vice Chancellor, CCS Haryana Agricultural University, Hisar
	<b>Dr. B.S. Dhillon</b> , Vice Chancellor, Punjab Agricultural University, Ludhiana
	<b>Dr. Ashok A Patel</b> , Vice Chancellor, SD Agricultural University, SK Nagar, Dantiwada
	<b>Dr. N.C. Patel</b> , Vice Chancellor, Anand Agricultural University, Anand
	<b>Dr. H. Shivanna</b> , Vice Chancellor, University of Agricultural Sciences, GKVK, Bengaluru
	<b>Dr. D.P. Biradar</b> , Vice Chancellor, University of Agricultural Sciences, Dharwad
	<b>Prof. B.R. Chhipa</b> , Vice Chancellor, SK Rajasthan Agricultural University, Bikaner
	<b>Prof. U.S. Sharma</b> , Vice Chancellor, MP University of Agriculture & Technology, Udaipur
	<b>Dr. P.S. Rathore</b> , Vice Chancellor, SKN Agricultural University, Jobner
	<b>Dr. G.L. Keshwa</b> , Vice Chancellor, Agricultural University, Kota
	<b>Dr. Balraj Singh</b> , Vice Chancellor, Agricultural University, Jodhpur
<b>Convener</b>	<b>Dr. R.S. Tripathi</b> , National Coordinator – VPM, ICAR-Central Arid Zone Research Institute, Jodhpur

### National Organizing Committee

<b>Chairman</b>	<b>Dr. K. Alagusundaram</b> , DDG, NRM, ICAR, New Delhi
<b>Co-Chairman</b>	<b>Dr. N.S. Rathore</b> , DDG (Edn) ICAR, New Delhi
<b>Member</b>	<b>Dr. S. Bhaskar</b> , ADG (AAF&CC), ICAR, New Delhi
	<b>Dr. O.P. Yadav</b> , Director, ICAR-Central Arid Zone Research Institute, Jodhpur
	<b>Dr. S.K. Singh</b> , Director, ICAR-National Bureau of Soil Survey and Land use Planning, Nagpur
	<b>Dr. P.K. Mishra</b> , Director, ICAR- Indian Instt of Soil &Water Conservation, Dehradun
	<b>Dr. K. Sammi Reddy</b> , Director, ICAR-Central Research Institute for Dryland Agriculture, Hyderabad
	<b>Dr. R.V. Kumar</b> , Director, ICAR- Indian Grassland and Fodder Research Institute, Jhansi
	<b>Dr. P.L. Saroj</b> , Director, ICAR- Central Institute of Arid Horticulture, Bikaner
	<b>Dr. A.K. Tomar</b> , Director, ICAR- Central Sheep and Wool Research Institute, Avikanagar, Tonk
<b>Member Secretary</b>	<b>Dr. Anurag Saxena</b> , General Secretary, Arid Zone Research Association of India, ICAR-Central Arid Zone Research Institute, Jodhpur



**The International Dryland Development Commission (IDDC)**

The 13<sup>th</sup> International Conference on Dryland Development: Converting Drylands from Grey to Green

11-14 February 2019

ICAR-Central Arid Zone Research Institute, Jodhpur, Rajasthan, India

*Please print or type:*

**Full Name:** ..... **Title:** Dr/ Prof /Mr / Ms  
(First name) (Middle name) (Surname)

**Nationality:** .....

**Address:**.....

.....

**Telephone (business):**.....

**Fax (business):**.....

**E-mail:**.....

**1. Will like to participate in the Conference** (*please select as appropriate*):

- to make an **oral** presentation under the **title:** .....  
.....
- to make a **poster** presentation under the **title:** .....  
.....  
.....
- without any presentation

**2. Will like / not like** (*please delete as appropriate*) to participate in **the post conference tour for visiting Jaisalmer, India.**

.....  
Name/Signature and Date

**Please return this letter of intent to:**

Dr. O.P. Yadav, Director  
ICAR-Central Arid Zone Research Institute, Jodhpur 342 003, India  
**Fax: 91-291-2788706 , E-mail: [director.cazri@icar.gov.in](mailto:director.cazri@icar.gov.in)**

**With copy to:**

Prof. Dr. Adel El-Beltagy, Chair of IDDC  
E-mail: [elbeltagy@drylanddevelop.org](mailto:elbeltagy@drylanddevelop.org)

Dr. Mohan C. Saxena, Executive Secretary, IDDC  
E-mail: [m.saxena@cgiar.org](mailto:m.saxena@cgiar.org); [saxena@drylanddevelop.org](mailto:saxena@drylanddevelop.org)

Eng. Mrs. Aida Ghazi  
ICDD Secretariat, 19 Aboul Feda St., Zamalek, Cairo, Egypt, Zip code: 11211  
E-mail: [aida@drylanddevelop.org](mailto:aida@drylanddevelop.org)

Dr. Anurag Saxena, Organizing Secretary  
ICAR-Central Arid Zone Research Institute, Jodhpur 342 003, India  
Fax: 91-291-2788706; E-mail: [cgag.13icdd@gmail.com](mailto:cgag.13icdd@gmail.com)

**The 13<sup>th</sup> International Conference on Dryland Development**  
**“Converting Drylands from Grey to Green”**  
**11-14 February 2019**  
**ICAR-Central Arid Zone Research Institute, Jodhpur, Rajasthan, India**

**Registration form**

Surname (family name):	First name:
<b>Passport details:</b> Name as written in the Passport.....No.: ..... Date of issue..... Place of issue..... Valid till..... Issuing authority.....	
Address:	
Postal code:	City:
Country:	
Phone:	E-mail:

Registration Fees*:	Payment		
	By 30-11-2018	By 01-01-2019	Till 11-02-2019
International Participants	US\$ 500	US\$ 600	US\$ 700
International Students**	US\$ 350	US\$ 400	US\$ 550
International Accompanying Person	US\$ 100		
Local Participants (Indian)	Rs 10,000	Rs 12,000	Rs 15,000
Local Students** ( Indian)	Rs 5000	Rs 6,000	Rs 7,000
Local Accompanying Member	Rs 5000		

\* The registration fee covers participation in all sessions, conference materials including the proceedings, sessional tea/coffee and lunch.

\*\* Submit a copy of your current student card with your registration

*Please pay the registration fees by crossed cheque in favour of The Secretary, Arid Zone Research Association of India (AZRAI), Jodhpur, with the note: '**Registration fees for 13th ICDD**' or transfer by wire RTGS/NEFT as per the details given below)*

**Bank Account Details**

AZRAI-ICDD2019

IFSC Code: SBIN0003258

Bank: State Bank of India

Branch: Shastri Nagar, Jodhpur

**Please return this form with payment to:**

The Secretary, Arid Zone Research Association of India (AZRAI), Jodhpur, 342 003 Rajasthan, India

Tel: +91-291-2786483; Fax: +91-291-2788706, Mobile: +91-9413906115

E-mail: [cgag.13icdd@gmail.com](mailto:cgag.13icdd@gmail.com)

## GUIDELINES FOR PREPARING MANUSCRIPT

### Abstract

An Abstract or summary of your paper should not exceed 300 words (NOT including title, authors, and affiliation of each author). The Abstract should not contain any figures or tables. Please use MS Word 98 and above. Use **Times New Roman font 12 pt** with **single spacing** with 2.5 cm (1 inch) margins all around. The title should be in **bold**. The author(s) names with initials should be in the next line. Name of corresponding author should be followed by \*. Superscripts may be used to designate affiliation of authors if different from each other. **An example is provided below:**

#### **Collection, characterization and identification of drought, salinity and heat tolerant *Sinorhizobium nodulating alfalfa* for adaptation to climate change**

Imane Thami-Alami\*<sup>1</sup> and Sripada M. Udupa<sup>2</sup>

\*1 Institut National de la Recherche Agronomique (INRA), Centre Régional de la Recherche Agronomique de Rabat, B.P. 415, Rabat, Morocco, e-mail: [thamialami\\_ma@yahoo.fr](mailto:thamialami_ma@yahoo.fr);

2 ICARDA-INRA Cooperative Research Project, International Center for Agricultural Research in the Dry Areas (ICARDA), B.P. 6299, Rabat, Morocco, e-mail: [s.udupa@cgiar.org](mailto:s.udupa@cgiar.org)

### Abstract

The gram-negative bacteria *Sinorhizobium meliloti* and *S. medicae* are able to interact with roots of alfalfa to form nitrogen-fixing nodules and survive as a free living saprophytic bacterium in the soil. The host, alfalfa is the most important forage legume crop in the arid and semi-arid areas of Morocco and North Africa. In these areas, alfalfa is grown in marginal soils and frequently subjected to drought, extremes of temperature and high or low soil pH, soil salinity and heavy metals, which affect biological nitrogen fixing ability of rhizobia and productivity of the host. In this study, we examined physiological diversity of the sampled isolates from marginal soils of arid and semi-arid regions of Morocco for tolerance to the above stresses, molecular genotypic diversity at Repetitive Extragenic Palindromic DNA regions of *Sinorhizobium nodulating alfalfa*, and biological nitrogen fixing efficiency of some of the tolerant isolates. The study revealed that out of the 157 sampled isolates, 136 isolates were identified as *S. meliloti* and the rest as *S. medicae*. Further phenotyping of these alfalfa rhizobia for tolerance to the environmental stresses revealed a large degree of variation: 55.41%, 82.16%, 57.96% and 3.18% of the total isolates were tolerant to NaCl (>513mM), water stress (-1.5 MPa), high temperature (40°C) and low pH (3.5), respectively. Sixty-seven isolates of *S. meliloti* and thirteen isolates of *S. medicae* 80 that were tolerant to salinity were also tolerant to water stress. Genotyping with rep-PCR revealed higher genetic diversity within these phenotypic clusters and classified all the 157 isolates into 148 genotypes. Some of the tolerant strains were also efficient in biological nitrogen fixation. Therefore, these tolerant strains have a great potential for exploitation in salt and drought affected areas for BNF in alfalfa and also for adaptation to climate change.

### Paper Manuscript

Please use MS Word 98 and above, and **Times New Roman font 12 pt** with **double spacing** and 2.5 cm or 1 inch margins all sides. The title should be in **bold**. The author(s) names with initials should be in the next line. Superscripts may be used to designate affiliation of authors if different from each other as in the Abstract. The Corresponding Author should be marked with an asterisk (\*). The length of the paper should not be more than 4000 words excluding title, affiliations, references and tables. The editors reserve the right to edit papers that are longer than required.

## Title

The title should give the reader what the paper is about. Therefore, it should be brief and informative. Use common names for crops and avoid abbreviations. The usual limit for a title is 12 nouns (that is, not counting “the”, “of”, “and”, etc.

## Footnotes

Footnotes are generally not encouraged, but may be used if absolutely necessary. Number any footnotes consecutively.

## References

References in the text of the paper should follow the author-date system (e.g., Sadeghi, 2015; Collard and Mackill 2009; Singh et al. 2017) with no comma between author name and date. Use the following examples in references which should be listed alphabetically at the end of your paper.

### • Journal article

Sadeghi, B. 2015 *Zizyphus mauritiana* extract-mediated green and rapid synthesis of gold nanoparticles and its antibacterial activity. *Journal of Nanostructure in Chemistry* 5: 265–273.

Collard, B.C.Y. and D.J. Mackill. 2009. Start codon targeted (SCoT) polymorphism: a simple, novel DNA marker technique for generating gene-targeted markers in plants. *Plant Molecular Biology Reporter* 27(1):86-93

Singh, S.K., S. Chhajer, R. Pathak, R.K. Bhatt and R.K. Kalia. 2017. Genetic diversity of Indian Jujube cultivars using SCoT, ISSR and rDNA markers. *Tree Genetics and Genomes* 13:12-18.

### • Books

Maude RB. 1996. Seed-borne diseases and their control: Principles and practice. Wallingford: CAB International. p 280.

Rawson, H. 1981. A Dictionary of Euphemisms and Other Doubletalk. Crown Publishers, New York, NY, USA.

### • Chapter in a Book

Bari, A., A. Della and J. Konopka. 1998. Locating diversity using germplasm passport data and herbarium records: case of *Aegilops* in Cyprus. Pages 53-56. in *Use of Triticeae in Wheat Improvement* (A.A. Jaradat, ed.). Science Publishers, Enfield, NH, USA.

N.B.:- Do not capitalize the chapter title, but capitalize the book title.

### • Chapter in Symposium Proceedings

Amri, A., J. Valkoun, M. Ajlouni, R. Assi, Y. Sbeith and A. Saad. 2003. Promotion of insitu conservation of dryland agrobiodiversity in West Asia. Pages 38-39 in *Sustainable development and management of dry lands in the 21<sup>st</sup> century: Proceedings of the Seventh International Conference on Development of Dry Lands*. 14-17 September 2003, Tehran, Iran.

Hawtin, G.C. 1982. The genetic improvement of faba bean. Pages 15-32 in *Faba Bean Improvement: Proceedings of the Faba Bean Conference* (G. Hawtin and C. Webb, eds.), ICARDA/IFAD Nile Valley Project, 7-11 March 1981, Cairo, Egypt. Martinus Nijhoff Publishers, The Hague, The Netherlands.

N.B.:- In the second example there is no need to repeat the sponsor's address in publisher's place as the sponsor's address and the location of the conference are the same, and the sponsor is the publisher of the proceedings volume.

- **Entire Proceedings**

Hawtin, G. and C. Webb (eds.). 1982. Faba Bean Improvement: Proceedings of the Faba Bean Conference (G. Hawtin and C. Webb, eds.), ICARDA/IFAD Nile Valley project, 7-11 March 1981, Cairo, Egypt. Martinus Nijhoff Publishers, The Hague, The Netherlands.

ICRISAT (International Crops Research Institute for Semi-Arid tropics). 1975. Proceedings of the International Workshop on Grain Legumes. ICRISAT, 18-20 January, Hyderabad, India. ICRISAT, Patancheru, TS, India.

N.B.:- The sponsoring institute takes the author's place if there are no editors.

- **Un-published reports and papers**

Avoid quoting the above

- **Personal Communication**

Citations referring to communications which cannot be retrieved by readers should not be included in the reference list. Such communications (personal letters or verbal discussions, etc.) should be mentioned in the text as follows: .... as was recently discovered (A.B. Damania, ICARDA 1999 pers. comm.).

- **Articles “in press” or “under preparation”**

Journal articles, book chapters that are accepted for publication but not published as yet can be included in the references list, but they will be without volume and/or page numbers. In this case the words (in press or under preparation) should be at the end of the reference.

## **Tables**

Each table title should be self-explanatory. All Tables should be numbered consecutively and referred to in the text at appropriate places as Table 12 (for example). Do NOT imbed your table in the body of the paper. Include it at the end of your paper or in separate files. There should be only one table per page.

## **Figures**

Each figure title should be self-explanatory. All figures should be numbered consecutively and referred to in the text at appropriate places as Fig. 11 (for example). Do NOT imbed your figure in the body of the paper. Include it at the end of your paper or in separate files. There should be only one figure per page.

## **Photographs**

Photographs can be submitted as \*.jpeg or \*.tiff files only. Color photographs do not reproduce well in black and white. However, if the subject is bright they can be included.

## **Grammar and spellings**

Please use grammar and spellings as mentioned in the *Webster's New Collegiate Dictionary*.

## **Numbers**

*Use a numerical or numerals*

i) For expressing any number that immediately precedes a standard unit of measure (abbreviated):

ii) 44 g    88 mm    250 m<sup>2</sup>

***Date, etc.***

For a date, an expression of time, a page number, a percentage, a decimal quantity, or a numerical designation:

13 April 2017    the time is 07:45    page 123

37.8 g    a magnification of 40    88%

***For a number implying arithmetical manipulation***

14 multiplied by 3 a factor of 4

***In most situations not mentioned above, use words for numbers one through nine and numerals for larger numbers:***

Four plants three flowers 12 leaves 32 pods

***In a series containing some numbers of 10 or more and some less than 10, use numerals for all:***

Germplasm scientists collected 5 genotypes of chickpea, 25 of durum wheat, 19 of faba bean, and 7 of lentil from a village near Aleppo.

***Do not begin a sentence with a numeral:***

Twenty-five seeds were sown in each pot.

***If two related numbers occur at the beginning of a sentence, only the first need be spelled out:***

Fifteen or 20 seeds were sown in each pot.

***In writing large number ending in several zeros, either substitute a word for part of the number or add an appropriate prefix to a basic unit of measurement:***

1.2 million (NOT 1,200,000)    46 µg (NOT 0.000046 g)

***Use numerals for all numbers referring to figures and tables:***

Fig. 22.    Table 11.

***In general, use the decimal system rather than fractions:***

About one-third of the plants in the field survived the disease.

All surviving plants (1/3 of those sprayed) were selected for crosses.

**Dates and time**

***Write the day, month and year in this form:***

28 July 1960 (NOT July 28, 1960)

***Periods or seasons extending over parts of two successive calendar years should be indicated by the***

***use of a solidus (forward slash):***

The 2016/17 season      winter of 2016/17      fiscal year 2015/16

***Use a hyphen to indicate continuing numbers – dates, time, or reference numbers:***

2012-15 10:00-11:00 a.m.

April-May 2017 pp. 130-155.

From 2005 to 2016 (NOT from 1985-92)

From 8:00 a.m. to 6:00 p.m.

From January to July

Between 2001 and 2004 (NOT between 2001-04)

***Spell out particular centuries:***

Twenty-first century (NOT 21st century)

***Use full number for decades:***

1990s (NOT 90s or nineties)