



Biosalinity News

Newsletter of the International Center for Biosaline Agriculture

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FROM THE EDITOR

This issue of *Biosalinity News* is a mixed bag.

Our feature article concerns the Annual Meeting of the IDB. Always an important event for ICBA, this particular meeting had special significance for us because ICBA's work was featured at an invitational seminar.

Our first workshop to be held in sub-Saharan Africa is reported on page 4. We hope that this event, which was held in Niamey, Niger, in August, will be the first of many in this important region.

This issue's *Focus on Salinity* features an article by Dr Jeannette Hoek of Ocean Desert Enterprises.

An important event in the multi-donor, multi-country Forage Project, a field day in Jordan that brought farmers and scientists together, is described on page 8.

Contributions on research or projects that would be of interest to our readers are always welcome, as are letters to the Editor.

Please send your submissions, including relevant photographs and figures, to:

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ICBA research showcased in Kuwait

The 31st Annual Meeting of the Islamic Development Bank (IDB) was held 28-31 May in Kuwait. On 27 May, ICBA and the Kuwait Institute for Scientific Research (KISR) hosted a special seminar on *Innovations in biosaline agriculture in GCC countries with special reference to Kuwait*. The event, chaired by HE Amadou Cisse, Vice President Operations, IDB, was well attended. The seminar featured presentations about various aspects of biosaline agriculture by Dr Wouter van Dieren of Ocean Desert Enterprises (ODE); Prof Dr Faisal Taha,



ICBA Director General Dr Mohammad Al-Attar (left) and Board Chair Mr Fawzi AlSultan (center), both Kuwaitis, were right at home at the meeting. With them is Mr Ibrahim Bin Taher, ICBA's Government Liaison.



Kuwait City, the venue of the IDB's 31st Annual Meeting.

Director Technical Programs, ICBA; Dr Nader Al-Awadhi, Deputy Director General, KISR; Dr Yousif Al-Shayji, Manager, Biotechnology Department, KISR; and ICBA's Dr Abdullah Dakheel, Field and Forage Crops Scientist.

The ICBA team took the opportunity of visiting KISR, where both Director



The ICBA seminar at Kuwait was an unqualified success. Panelists included (left to right) Dr Wouter van Dieren, ODE (see article on p.6); Mr Fawzi AlSultan, ICBA Board Chair; HE Amadou Cisse, Vice President Operations, IDB; Dr Abdul Hadi Al-Otaibi, Director General KISR; and Dr Mohammad Al-Attar, Director General, ICBA.

General Dr Mohammad Al-Attar and Prof Dr Faisal Taha were employed before joining ICBA. The visit was an eye-opener for team members who had not previously visited this state-of-the-art institution.

Related article on page 2.

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Images from Kuwait



ICBA's seminar attracted a great deal of interest. Enhancing the presentations were publications and posters about ICBA's work.



ICBA's Communications Coordinator Ghazi Al Jabri.



Old friends: DG Dr Al-Attar with Dr Abdul Aziz Khelef, former ICBA Board member, and Dr Abdul Razzaq Lababidi. Both are officials with the IDB.



Strengthening relations: KISR and ICBA are the two premier institutions for biosaline agriculture in the Gulf region.



DG commended in Central Asia



ICBA Director General Dr Mohammad Al-Attar received a memento from Prof Dr Adel El-Beltagy, Director General of the International Center for Agricultural Research in the Dry Areas (ICARDA) for his valuable contributions to the CGIAR Program for Sustainable Agricultural Development in Central Asia and the Caucasus. Also present was Dr Raj Paroda, ICARDA Regional Coordinator.

NEW PUBLICATIONS

SALT-TOLERANT PLANTS OF THE UNITED ARAB EMIRATES



FAWZI M. KARIM
ABDULLAH J. DAKHEEL

Salt-tolerant plants of the United Arab Emirates by Fawzi Karim and Abdullah Dakheel. The first publication of its kind, essential for botanists and landscapers in the Gulf region. 184 pages, 137 color plates.



Annual Report 2005
(1425-26H)
International Center for
Biosaline Agriculture

ICBA Annual Report 2005 (1425-26H). 120 pages. The Arabic translation is in progress.



Partnership in action

The United Arab Emirates and ICBA: Partnership in action.

A 16-page brochure about the dynamic relationship between ICBA and its host country was published in August.

ICBA NEWS

New staff

Dr Nanduri Kameswara Rao joined ICBA as Plant Genetic Resources Scientist in July. An Indian citizen, Dr Rao received his PhD from the University of Reading, UK. His previous position was Germplasm Conservation Scientist with the International Plant Genetic Resources Institute (IPGRI) in Nairobi. Before IPGRI, Dr Rao was employed as Genebank Curator at the International Crops Research Institute for the Semi-arid Tropics (ICRISAT), India. Earlier, he undertook a postdoctoral fellowship at the International Rice Research Institute (IRRI) in the Philippines. Dr Rao has published numerous publications, including over 50 journal articles.



Khurshid A Mufti (left) has been working with ICBA since October 2005 as Soil Technician. The Editor apologizes to Mr Mufti for overlooking his arrival in earlier issues. **Bassam Razzak** (right) joined as Field Assistant-Salinity Unit in March.



Ghulam Shabbir (left) was appointed Agronomy Lab Technician in June. These three gentlemen are all from Pakistan. **Badryh Bochi** (right), who joined ICBA in June, is the new Administrative Assistant in the Office of the Director General. Ms



Bochi is Syrian. **Baedaa Ismail Khalil** (left) joined ICBA in July as Communications Assistant. Ms Khalil is from Iraq. **Lina Al Cherkawi** (right), a Syrian national, took up the post of Receptionist in May. In August, **Hiba Kamal** (lower left) joined ICBA as Administrative Assistant for the



Abu Dhabi Office. Ms Kamal is from Iraq. **Wameedh Monther Yousif** (right), whose departure from ICBA was announced in our last issue, returned to the Center to take up his former job of Farm Technician in July. It seems that Mr Yousif could not stay away ≠ welcome back!



Promotions

Congratulations to two long-time staff members who were recently promoted. **Ghazi Al Jabri**, Administrative Assistant -Communications, was



promoted to Communications Coordinator in April. **Akhtar Ali Akbar Ali**, who has been with ICBA since its inception in 1999, has a new designation: Public Relations Assistant in the DG's Office.

Departures

Souhad Khalifeh El-Zahed, Administration Services Supervisor, departed ICBA in May to take up residence in Canada. Ms El-Zahed served ICBA since its inception in 1999.



Jugu Abraham left ICBA in May after serving the Center as Donor Relations Specialist since 2001. Mr Abraham has returned to his home in Kerala, India, where he now works as a private consultant.

We wish both Souhad and Jugu all the best in their future endeavors.

NEW PAPERS

Shahid SA and Hasbini BA. 2006. Optimization of modern irrigation for biosaline agriculture. Arab Water World Magazine. July-August 2006, Vol XXX Issue 6: 30-31.

Al-Maskri AY, Shahid M and Jaradat AA. 2006. Multivariate phenotypic structures in the Batini barley landrace from Oman. Journal of Food, Agriculture & Environment 4(2): 208-212.

NIGER WORKSHOP IS ICBA'S FIRST IN SUB-SAHARAN AFRICA

A training course entitled *Introduction and application of biosaline agriculture with reference to Niger*, which was held at the Gaweye Hotel in Niamey, was ICBA's first ever workshop in sub-Saharan Africa. When the Center was established by the Islamic Development Bank in 1999, its geographic mandate consisted of the six countries of the Gulf Cooperation Council. In recent years, the Bank has encouraged ICBA to extend its influence into other member countries where salinity is problematic. Agricultural scientists in the Sahelian region



Media interest: Dr Ismail interviewed by BBC.

are particularly keen to acquire knowledge of the problems of salinity – problems that are getting worse in the region.

The workshop, which took place 21-27 August, was funded by the IDB

through COMSTECH, the Standing Committee on Scientific and Technological Cooperation of the OIC. Organized by ICBA in cooperation with the national agricultural research system of Niger, the Institut National des Recherches Agronomiques du Niger (INRAN), the aim was the strengthen the country's



HE Moussa Labo, Niger's Minister of Agricultural Development (second from right), inaugurates the historic workshop. Seated with him are Dr Samba Ly, Director General of INRAN (right); Dr Saidou Koala, Regional Director, ICRISAT; and Dr Shoaib Ismail, ICBA team leader.

technical expertise in managing salinity by adopting biosaline agriculture. ICBA staff involved in the workshop were Dr Shoaib Ismail (who led the team), Dr Nurul Akhand, Dr Shabbir Shahid and Mr Eric McGaw.

A Memorandum of Understanding was earlier signed between ICBA and INRAN. This training course, along with a follow-up internship for selected participants at ICBA headquarters in Dubai in early 2007, constitute the first phase of this cooperation. Collaborative R&D work will comprise the second phase.

The workshop was inaugurated by His Excellency Moussa Labo, Minister of Agricultural Development. Also making a presentation at the inaugural ceremony was Dr Samba Ly, Director General, INRAN. The Regional Director of ICRISAT, Dr Saidou Koala, and his deputy Dr Ramadjita Tabo, were also present.

An important feature of the course was a field trip to ICRISAT Sahelian Center, a major international research facility in the country.



Participants in front of the Hotel Gaweye. His Excellency Moussa Labo, Minister of Agricultural Development, stands between Dr Nurul Akhand (blue necktie) and Dr Shoaib Ismail (red necktie), both ICBA scientists. Dr Samba Ly, Director General of INRAN, is to the left of Dr Akhand.



Uzbekistan visit cements new partnership

When ICBA administrators visited Central Asia early this year, the hospitality they experienced was unprecedented. So when Director General Al-Attar invited his hosts to visit ICBA's headquarters in Dubai, the idea was to attempt to repay the favor.



Cutting across the language barrier: Dr Toderich, who is Romanian, translates information about date palm tissue culture into Russian from English.

Plant Scientist based at Tashkent (who also served as interpreter) and Dr Habib Kushiev, Department Head at the university. Two university students, Hakimjon Mallayev and Sheraly Mamadectoyev, also took part in the visit, and stayed on for several days of intensive training.

The visit consisted of a meeting with officials of the UAE's Ministry of Environment and Water, a demonstration of ICBA's labs and field studies, and a tour of UAE University.



The delegation from Uzbekistan was led by Professor UN Tashkenbaev, Rector of Gulistan University, an important ICBA research partner. He was accompanied by Dr Kristina Toderich, ICBA



The Uzbekistani students in the ICBA Genebank.

When Prof Tashkenbaev presented Director General Al-Attar with traditional Uzbekistani dress, he was repaid in kind (with a little assistance from Ibrahim Bin Taher).



Pondering ICBA's future

Meeting for the first time in June, the Selection Committee for the new Director General reviewed the dozens of CVs of candidates from many countries who have expressed interest in the position. The committee was composed of five highly qualified individuals, all of whom know ICBA well. The next stage in the process is to interview shortlisted candidates in mid September.



The Selection Committee deliberates. Left to right: Mr Mohammed Ennifar, Director, Operations Planning and Services Department, IDB; Dr Mohammed Roozitaleb, former Chairman of GFAR and ICBA Board member; Director General Al-Attar; Mr Fawzi AlSultan, Chairman of the Board; Mr Rashid Mohammed Al Shariqi, Director General, Abu Dhabi Food Control Authority and former ICBA Board member; and Dr Karim Allaoui, Water Resources Specialist, IDB.

DTP presents paper at IFAD meeting

A seminal meeting on *Strategic directions for rural water in the Near East and North Africa region* was recently convened by IFAD in Rome. The primary subjects of the workshop, which included rural water management and alternative water resources for poor communities, are of vital concern to ICBA. The Center was represented by Director Technical Programs, Prof Dr Faisal Taha.



Upcoming meetings

International Conference on Saline Agriculture, 4-6 Dec 2006, Faisalabad, Pakistan. Saline Agriculture Research Centre, University of Agriculture, Faisalabad, Pakistan. Contact: Dr Javaid Akhtar. Email: sarc@fsd.paknet.com.pk. Fax: +92 41 920221.

Annual General Meeting of the CGIAR, 4-7 Dec 2006, Washington DC. Information: www.cgiar.org.

FOCUS ON SALINITY

Saline biomass for energy: a solution for saline wastelands?

**Dr Jeannette Hoek, Director Research and Business
Ocean Desert Enterprises (ODE)**

Organization for Agriculture in Saline Environments (OASE) Foundation

Dr Hoek originates from a strong environmental tradition in the Netherlands. ODE and OASE were founded by Wouter van Dieren, a Netherlands national with a global reputation for unconventional solutions to environmental problems.

In late 2006, ODE/OASE and ICBA will begin collaborating on an EU-funded project. The objective: to quantify the potential of saline wastelands for the production of renewable energy and CO₂ sequestration.

The premise of ODE is that the world can no longer afford to neglect resources that remain unused or considered too difficult to develop. Its long-term vision is that the increasing pressure on fossil resources throughout the world, accompanied by rising prices for energy and raw materials, will open up new windows for the development of saline wastelands.

In pursuit of this objective, ODE, and the recently founded OASE Foundation, have embarked on partnerships with biosaline research organizations, private companies and governmental bodies to develop biosaline value chains for renewable energy and other potential products. One important outcome of this initiative is the Biosaline Colorado Delta Project, an agroforestry pilot project developed in cooperation with Mexican partners in an extremely desolate area. The project is funded from both public and private sources. Donors include Shell International, Shell Canada, the Ministry of Science of the Netherlands, the DOEN Foundation and IMSA-Amsterdam.

The project site is situated in the Mexican Colorado River Delta between the US border and the Gulf of California, one of the driest regions on the globe with high evaporation and effective rainfall close to zero. During the past century, the Colorado River,



A bit of everything: ODE's nursery includes grasses, shrubs and trees.

which once fed an abundant wetland, has been increasingly tapped upstream by desert cities like Las Vegas and by large-scale commercial farms in Arizona and California. Today, where the river crosses the US-Mexico border, it contains *only* 2% of its original volume. It is highly unlikely that larger average volumes will ever return.



The loss of fresh water has impacted the Mexican part of the Colorado Delta dramatically. Farms once productively irrigated with river water have given way to abandoned plots with cracked soils. The story of barren soils, poverty, salt intrusion and rural exodus is not unique ≠ it has repeated itself in many large river systems in arid regions throughout the world.

The Biosaline Agroforestry Pilot is an R&D project with two main objectives.

1. Generate data on producing various kinds of plants suited to these saline environments using unconventional water and soil resources.
2. Create short-term income for local farmers.

Possibilities include the production of wood as renewable energy and CO₂ sequestration with poles and charcoal for both local and regional markets.

The project area, covering 30 ha of what used to be an estuary, is characterized by heavy, saline, sodic clays. Soil salinity varies from 54 dS/m at a depth of 1.5m to an average of 130 dS/m in the topsoil. Exchangeable sodium percentage (ESP) is 25%. The groundwater table is at a depth of 3m, and the EC of groundwater is 75-90 dS/m. An impermeable layer 1m thick occurs at 1.5m.

Brackish water is available from two sources. One is the excess drainage water from the irrigated areas in the delta. The other is the shallow groundwater of moderate salinity near the canals where waterlogging is a frequent problem. The salinity of the water from the drains varies from 4.5 to 9 dS/m. The sodium adsorption ratio (SAR) is 15-28.

The project uses both water resources in two different plots. Brackish drainage water irrigates a 30-ha plot developed as an agroforestry trial. An additional 3-ha plot has been developed as a non-irrigated forestry trial based on the availability of suitable brackish groundwater with a relatively shallow water table (3m).

The main species is *Tamarix aphylla*, a very hardy, fast-growing Mexican tree variety that can tolerate the extreme conditions of the area. A second species is a Mexican variety of *Prosopis tamarugo*. Several other species have been selected for hedges and an arboretum. Most of the trees are established from cuttings or seeds in a nursery. In the 3-ha area, saplings 3m in length are planted in deep holes near the water table (see photograph below). After some initial irrigation, they grow to considerable height within a year without any additional irrigation or inputs.

The nursery was established in spring 2004, and by 2005 the 30-ha plot had been developed.

Infrastructure was installed for flood irrigation and salinity management with drainage canals at depths of 1.4-1.6m. Leaching of this highly saline area to soil salinities of 25-30 dS/m began by the third quarter of 2005. In these alkaline conditions, leaching takes a long time, but eventually salinity was reduced to the desired levels. By May 2006, trees had been planted on 15 ha and the area now looks green. It will take 1-2 years before the first results of the project can be properly assessed.

With the results of these pilot projects, the next steps will be to identify suitable areas in the delta for



upscaling to 500 ha. Apart from large-scale biomass production and the secondary economic activities, benefits

Planting the area with young Tamarix for forestry trials.

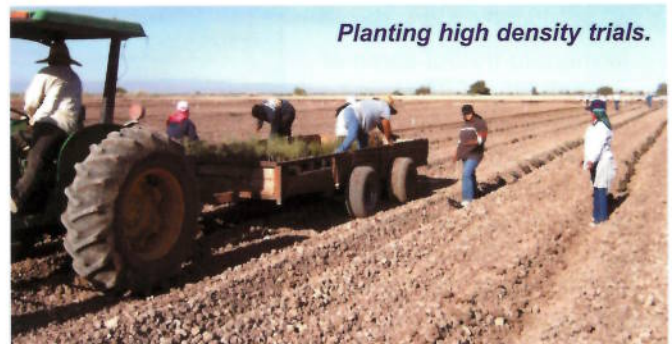
Tamarix maturing in the field.

More important than ever

Worldwide, salinity is increasing. Today, about 1 billion hectares are salinized, a figure that continues to grow at the pace of 10 million hectares annually. Increasingly, agriculture must compete with urban and industrial demand for fresh water. The abundant salty and brackish water resources on the planet will therefore become a crucial source of irrigation.

anticipated include increased biodiversity, decreased damage from salt storms, new green habitat, and – last but not least – new knowledge and sources of income for the local population.

Clearly, results from this kind of research project cannot be expected overnight. However, the combined efforts of local NGOs, innovative farmers, local and regional authorities, and industrial partners may lead to the creation of a model for the development of similar saline wastelands in other regions.



Planting high density trials.

Dr Hoek can be contacted at ODE/OASE. Her email address is jeannette@oceandesert.nl.



FORAGE PROJECT UPDATE

Farmers and researchers move ahead in Jordan

The benefits of getting farmers and scientists together to exchange experiences and ideas are incalculable. Such a meeting took place on 11 July at Khaldiah Research Station, an integral part of the infrastructure of Jordan's National Center for Agricultural Research and Technology Transfer (NCARTT). The station lies about 70 km east of Amman.

The success of the Forage Project (jointly funded by IFAD, the Arab Fund and the OPEC Fund) has been dramatic in Jordan. Said Dr Abdul Nabi Fardous, Director General of NCARTT, 'We worked hard to convince a few lead farmers to try out some of the salt-tolerant forage crops identified by ICBA. This field day is their first opportunity to show the results of their efforts to their neighbors. No one can convince a farmer better than another farmer!'

As they say, the proof of the pudding is in the eating, and Jordan's extension agents are hopeful that the enthusiastic response of the farmers already subscribed to the project will spread throughout the country.



A farmer makes his point.



The inaugural ceremony. Dr Abdul Nabi Fardous, Director General of NCARTT, is seated second from right. Next to him is ICBA's Dr Abdullah Dakheel.

Where nothing grew less than a year ago, both perennial shrubs (foreground) and annual forage crops (background) now flourish.



Farmers and extension staff inspecting the robust growth of pearl millet cultivated with saline groundwater.

Team-building exercise for ICBA staff



Business unusual – For a couple of days in June, ICBA staff members got together to explore the possibilities of improving the Center's output by building teamwork. The workshop was held at two locations. On the first day, the staff met at ICBA headquarters. On the second day, the participants got together at the Jumeirah Sheraton Hotel, where the atmosphere proved quite conducive to brainstorming.

At the end of the workshop, the ICBA team resolved to work together with greater transparency. As Basel Al-raj, Irrigation Technician, remarked at the conclusion of the exercise, 'I've worked at ICBA for several years, but this is the first time I have ever felt comfortable talking to management on an equal basis!' The workshop was led by Dr Sue Canney of Pipal International.