WASWAC

WORLD ASSOCIATION OF SOIL AND WATER CONSERVATION

HOT NEWS

Issue 04, 2014

WASWAC HOT NEWS No. 4, April, 2014

Contents

Cover photo: Terrace to control soil loss in slope farmlands, Longsheng County, Guangxi, China

This issue is edited by Ms. Mao Juan, contributors including Prof. Li Rui, Dr Will Mahoney, Dr. Shabbir A. Shahid, Dr. Amir Kassam and Dr. Du Pengfei.

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The First Issue ISWCR of 2014

The first issue of ISWCR in 2014 will be ready soon. It is over the deadline – the end of March for a quite long time because the new typesetting software was introduced since this issue through taking Prof. Julian Dumanski's suggestions. This issue was edited by J. Dumanski, D. C. Reicosky, and R. A. Peiretti, who made great effort to improve our journal's quality. This issue is mainly emphasis on the pioneers in soil conservation and conservation agricultures. Ten papers (including preface) have been selected after peer review. Following is the content of this issue:

INTERNATIONAL SOIL AND WATER CONSERVATION RESEARCH

Volume 2 Number 1 March 2014

PIONEERS IN SOIL CONSERVATION AND CONSERVATION AGRICULTURE

Edited by: J. Dumanski, D. C. Reicosky, and R. A. Peiretti

The transformation of agriculture in Brazil through development and adoption of Zero Tillage Conservation Agriculture

P. L. de Freitas and J. N. Landers

The development and adoption of conservation tillage systems on the Canadian Prairies

L. Awada, C. W. Lindwall, and B. Sonntag

No-till systems on the Chequen Farm in Chile: A success story in bringing practice and science together

D. Reicosky and C. Crovetto

Evolution of soil and water conservation in rain-fed areas of China

Li Lingling, Zhan Renzhi, Luo Zhuzhu, Liang Weili, Xie Junhong, Cai Liqun, and B. Bellotti

Conservation Agriculture in Europe

Á. Kertész and B. Madarász

No-till and conservation agriculture in the United States: An example from the David Brandt farm, Carroll, Ohio

R. Islam and R. Reeder

The abstracts for nine papers are shown as following:

Global achievements in soil and water conservation: The case of Conservation Agriculture

A. Kassam[1], R. Derpsch[2], and T. Friedrich[3]

Abstract

In response to the dust bowls of the mid-thirties in the USA, soil and water conservation programmes involving reduced tillage were promoted to control land degradation, particularly soil erosion. The farming and land management practices that were considered to adequately address soil and water conservation objectives were based on no-till seeding and maintenance of soil mulch cover. This collection of practices led to what became known as conservation tillage, although no-till systems by definition avoid soil disturbance by no-till direct seeding, and maintain an organic mulch cover on the soil surface.

This article is an overview of achievements in soil and water conservation on agricultural lands through the experience derived from the adoption and spread of Conservation Agriculture (CA) world-wide. CA is an agro-ecological approach to sustainable production intensification. It involves the application of three inter-linked principles that underpin agricultural production systems based on locally formulated practices: (i) permanent no or minimum mechanical soil disturbance, which in practice entails direct seeding through mulch into no-till soils; (ii) maintenance of soil cover with crop residues and green manure crops, particularly legumes; and (iii) diversified cropping system involving annuals and perennial in rotations, sequences and associations.

In 2011, CA had spread over 125 million hectares (9% of the global cropped land) across all continents and most agro-ecologies, including small and large farms. In addition, there is a significant area of CA orchards in the Mediterranean countries. CA is now considered to be a practical agro-ecological approach to

achieving sustainable agriculture intensification. It offers environmental, economic and social advantages that are not fully possible with tillage-based production systems, as well as improved productivity and resilience, and improved ecosystem services while minimizing the excessive use of agrochemicals, energy and heavy machinery. While there are challenges to the adoption of CA, there is also increasing interest from producers, the civil society, donors and private sector institutions to further promote and service the uptake and spread of CA globally.

Key Words: No-till, Soil erosion, Agro-ecological, Ecosystem services, Save and grow

The transformation of agriculture in Argentina through soil conservation

R. Peiretti[1] and J. Dumanski[2]

Abstract

The adoption of no till was a major turning point in the transformation of agriculture in Argentina. This paper describes the process of adoption of no till, and the impacts of this on agricultural production. Whereas previously, soil erosion was so extreme and pervasive as to threaten the economic viability and survival of the industry, today with the majority of production under no till, Argentina produces more than ever in the past. The paper also illustrates how, after first focusing on technology adoption (no till), the system in Argentina has now broadened to include the concepts of Conservation Agriculture (CA) and Sustainable Land Management (SLM). These strategic moves have contributed to an agricultural industry in Argentina that is more economically and environmentally sustainable than that of the past.

Key Words: Soil conservation, No till, Conservation agriculture, Sustainable land management

The development of Conservation Agriculture in Australia — Farmers as innovators

B. Bellotti[1] and J. F. Rochecouste[2]

Abstract

The Australian story of farmer innovation in Conservation Agriculture reveals a complex interplay of policy, economics, science, and farming. Farmer experimentation with Conservation Agriculture began in the 1960's and has continued to this day where around 80%-90% of Australia's 23.5 million hectares of winter crops are now grown using Conservation Agriculture principles. This remarkable achievement is the result of both sustained investment in agricultural research and development and farmer innovation. Australian economic settings and science policies have encouraged and facilitated farmer participation in the Conservation Agricultural innovation system. Australian farmers have embraced Conservation Agriculture because it has met their needs, maintaining productivity and profitability in the face of declining terms of trade, and sustainably intensifying production with enhanced environmental outcomes. Drawing on individual farmer case studies, the specific strengths of farmer innovation are identified and the enabling conditions necessary for farmer innovation to flourish are discussed.

Key Words: Conservation Agriculture, No till, Farmer associations, Farmer innovation, Precision agriculture

The transformation of agriculture in Brazil through development and adoption of Zero Tillage Conservation Agriculture

P. L. de Freitas[1] and J. N. Landers[2]

Abstract

The soil conservation movement in Brazil has been a major driving force in the continuing search for agricultural farming systems that are more sustainable than what we have today, particularly in tropical and subtropical areas. The development and adoption of Zero Tillage Conservation Agriculture (ZT/CA) was the key to the success of this movement, generating agricultural, environmental, and societal benefits.

Adoption of the ZT/CA philosophy and technologies is currently practiced on more than 50% of the annual crop area. This is due to the work and innovations of pioneering farmers, agronomists, researchers, and consultants that were and are involved in these efforts. This extensive adoption of ZT/CA occurred after many unsuccessful efforts to mitigate against the devastating effects of soil erosion that were threatening the entire agricultural industry in Brazil. Technicians and farmers realized that erosion control required continual cover of the soil to guard against the torrential rain storms common to these regions. This triggered the efforts of soil conservation pioneers at different points in time and regions of Brazil.

In southern Brazil, Herbert Bartz, watched his topsoil eroding away in torrents of runoff. This set him thinking and searching for alternatives, resulting in his adoption of ZT/CA farming in 1972. Ten years later in Brazil's centre-western savannah (Cerrado biome), farmers, researchers, crop consultants and agro-industry initiated efforts to expand cultivation into the very difficult production region of the Cerrados. This was successfully achieved through the pioneering work of agronomist John Landers, bringing experience from the ZT/CA farmer association networks in the south.

These were the turning points in the sustainable development of annual crop farming in Brazil. Today, society recognizes the role of these pioneers as key to achieving social, economic and environmental sustainability. ZT/CA reversed the historically accelerating degradation of soil organic matter and soil structure by abandoning conventional tillage, thus improving soil physical and chemical characteristics. This was achieved by promoting cover cropping and permanent soil cover with crop residues, crop rotations, and complementary, environmentally suitable soil management technologies.

Key Words: Soil conservation, Zero tillage, Conservation agriculture, Sustainable soil management, Soil organic matter

The development and adoption of conservation tillage systems on the Canadian Prairies

L. Awada[1], C. W. Lindwall[2], and B. Sonntag[3]

Abstract

One of the major agricultural innovations on the Canadian Prairies over the last 40 years has been the introduction of conservation tillage (CT). Conservation tillage-a system that includes minimum and zero tillage (ZT) -was introduced as an alternative to traditional (conventional) tillage (TT) to control soil degradation and to promote agricultural sustainability. The development and adoption of CT systems involved pioneer farmers, engineers, scientists, and farmer associations. By the end of the 1970s, CT started to take shape on the Prairies, but for a number of economic, technical, political and social reasons, the

adoption of CT did not occur on any major scale before the 1990s. Today, more than 75% of the Prairie's cropland is under some form of CT with more than 50% under ZT. In this paper, the factors behind the development and adoption of conservation tillage technology on the Prairies in the period between 1930 and 2011 are reviewed. Then, some of the benefits of the adoption of CT on the Prairies are highlighted. The data show that CT and ZT became profitable for the majority of farmers during and after the 1990s, and that the increased use of CT contributed to the dramatic decrease in the area under summerfallow and to the increase in the area sown to canola and pulse crops. These changes contributed to the reduction of all forms of land degradation and to decreases in agricultural greenhouse gas (GHG) emissions.

Key Words: Conservation tillage, Zero tillage, Land degradation, Innovation development and adoption, Economic and environmental benefits

No-till systems on the Chequen Farm in Chile: A success story in bringing practice and science together

D. Reicosky[1] and C. Crovetto[2]

Abstract

No-till cropping systems provide an opportunity to protect the soil from erosion, while contemporaneously maintaining high yields and contributing to global food security. The historical aspects and the remarkable development of no-till systems on the Chequen Farm in Chile are reviewed. The adoption of no-till over the last 40 years has been a major turning point in reducing the devastating effects of soil erosion and a model for the evolution of sustainable crop production in highly erodible terrain in other parts of the world. The process of adoption of no-till systems in severely eroded foothills of Chile is described, as well as the environmental benefits and the sustainability of the system. The practical aspects of these developments are supported by scientific literature where appropriate, illustrating the value and coincident knowledge gained when combining analogue observations and information with scientific principles.

Key Words: Forestry, Soil erosion, Cover crops, Soil chemistry, Soil biology diversity, Crop production

Evolution of soil and water conservation in rain-fed areas of China

Li Lingling[1], Zhang Renzhi[2], Luo Zhuzhu[3], Liang Weili[4], Xie Junhong[5], Cai Liqun[2], and B. Bellotti[6]

Abstract

Rain-fed (dryland) farming is an ancient agricultural production system in China. It occurs widely across almost the whole country, especially in the Northwest and North China. The semi-arid Loess Plateau is the most important region of rain-fed farming in China, but unfortunately, soil erosion on the Loess Plateau area is the highest in China, and indeed amongst the highest in the world. This highlights the necessity for developing practices that can reduce soil and water erosion, improve soil water use efficiency, improve crop productivity, and reduce rural poverty in the region. Many techniques of soil and water conservation are being used in rain-fed areas of China, including such systems as mulch, ridge and furrow systems. The Appendix describes a unique system of soil and water conservation, called Shatian.

Modern research on conservation tillage (No Till), although essential for reducing erosion, increasing

crop productivity, and ameliorating poverty, is just beginning in China. Modern conservation tillage research started in the1990s' with support from Australia and other countries. The procedures, however, were modified to be in accord with local conditions and prevailing farmer experiences. With 10 years of experimentation, results show that the most successful conservation practice on the Western Loess Plateau is no till with stubble retention. This technique helps to conserve soil water, increases soil organic carbon, improves soil structure and water infiltration, reduces soil and water erosion, and improves crop productivity and sustainability of rain-fed farming systems. However, its adoption rate remains low due to barriers such as traditional attitude, insufficient rural extension, and so forth.

Key Words: Soil and water conservation, Rain-fed agriculture, Gravel sand mulch, Conservation tillage, No till, Crop Residue management, Soil carbon

Conservation Agriculture in Europe

Á. Kertész[1] and B. Madarász[2]

Abstract

The adoption of Conservation Agriculture (CA) in Europe varies according to the ecological regions of the continent. Although Europe is behind other countries in adoption of CA, the indicators for future progress are encouraging. The area where CA is applied is growing rapidly because of increasing environmental awareness, including soil protection, and because of the need to reduce production costs. The European Conservation Agriculture Federation (ECAF) plays an important role in the adoption and dissemination of CA practices, and in discussions involving CA and the EU Common Agricultural Policy (CAP) reform.

Yield performance and stability, operating costs, environmental policies and programs of the Common Agricultural Policy (CAP), and climate change will likely be the major driving forces defining the direction and for the extension of CA in Europe. The role of agriculture in climate change mitigation in the EU is discussed in the paper.

Key Words: Conservation Agriculture, Reduced tillage, No tillage, Climate change mitigation, CAP reform

No-till and conservation agriculture in the United States: An example from the David Brandt farm, Carroll, Ohio

R. Islam[1] and R. Reeder[2]

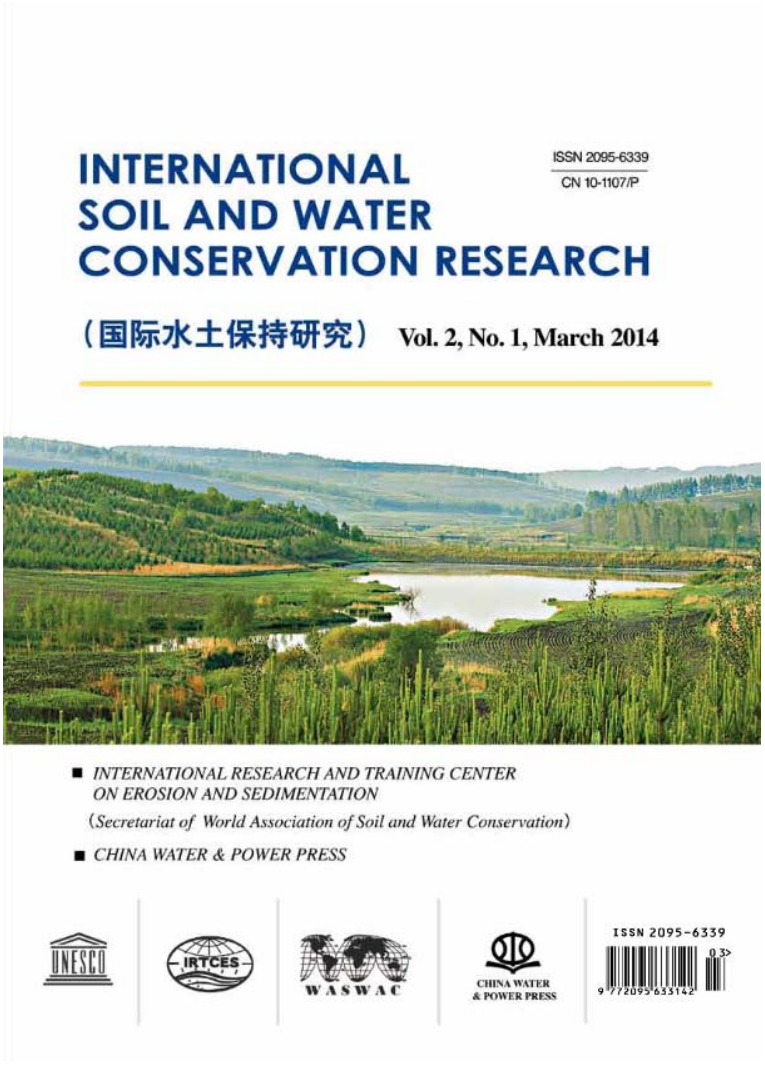
Abstract

No-till (NT) farming (conservation agriculture) began in the US in the 1960s. The state of Ohio has a university research location that began no-till research in 1962. A few innovative Ohio farmers, including NT pioneers David Brandt and Bill Richards, were early adopters of the new conservation practice. Initially, no-till was most successful on sloping, well drained soils, then with improvements to the system, including cover crops, it became more widely adopted on all soil types. David Brandt was an enthusiastic learner and teacher of no-till practices, working with chemical company representatives and Cooperative Extension Specialists to demonstrate the system.

David Brandt's cooperation with Ohio State University researchers continues to provide a valuable site for studying the long term changes in soil health and ecosystem services. Results showed that total microbial biomass as one of the soil biological health indicators significantly increased with an associated decrease in carbon (C) loss under NT compared with conventional tilled soil (CT). Under NT, there was significantly higher total C and total N compared to CT. Active C, as a composite measure of soil health, significantly increased with NT. When cover crops, especially cover crop cocktail mixes, were used, NT substantially improved soil health. Long-term NT with cover crop cocktail mixes significantly increased the soil aggregate stability, compared with CT. The overall rate of C sequestration by NT suggested that the soils on the Brandt farm act as a consistent sink of atmospheric CO2 although this tends to level off after about 20 years. The Brandt farm showed that crop yields are increased under long-term NT with cover crops mixes. Results suggested that starting with a cover crop when switching from CT to NT, is more likely to ensure success and to maintain economic crop yields.

Another early adopter, Bill Richards, from Circleville, Ohio, , also became a national leader and promoter of no-till farming. He served as head of the United States Department of Agriculture's Natural Resources Conservation Service in the early 1990s and instituted a program that led to rapid expansion of no-till. He advises that farmers who follow conservation agriculture principles need to be more proactive, from local level to national levels, to influence policy decisions that can lead to robust improvement in soil health.

Key Words: Innovation, Eco-farming, Corn, Soybeans, Wheat, Cover crops, Carbon sequestration, Soil organic matter, Agroecosystems



MEETINGS

About the Annual Meeting

The American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America will host more than 4,000 scientists, professionals, educators, and students at the 2014 International Annual Meetings, "Grand Challenges—Great Solutions," Nov. 2-5, 2014, in Long Beach, CA.

2014 Long Beach Dates & Deadlines

March 3

Abstract submission site opens.

Annual Meeting registration opens.

Annual Meeting housing reservations open.

May 22

Early abstract submission deadline.

June 6

Final abstract submission deadline.

late-July

Presenters will be notificed of their speaking time.

August 28

Abstract editing deadline for program book.

Details at: https://www.acsmeetings.org/

May 8 Regular Registration
May 8, 2014

Hosted by
Korean Society of Soil Science and Fertllizer
Rural Development Administration
International Union of Soil Sciences

Supported by
Ministry of Agriculture, Food and Rural Affairs
Jeju Special Self-Governing Province

Partners
European Commission
Federation of Eurasian Soil Science Societies
Global Soil Partnership
Institute for Advanced Sustainability Studies
Latin American Soil Science Society
United Nationas Convention to Combat Desertification

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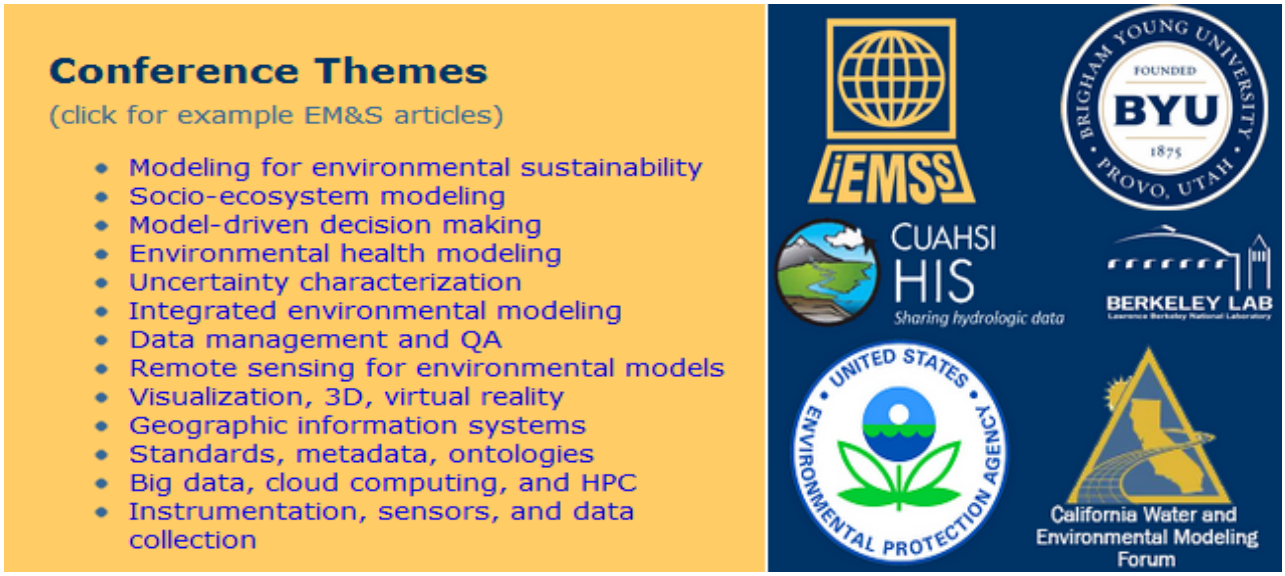
More Details available at: http://www.20wcss.org/index.php

7th International Congress on Environmental Modelling and Software (iEMSs)

Date and Venue: June 15-19, 2014, San Diego, California, USA



Details at: http://www.iemss.org/sites/iemss2014/index.php

THEMES

(i)Machinery: Design and development of CA-based crop establishment and herbicides spraying machinery, implements, tools for smallholders.

(ii)Weed management: Suitable weed management options (chemical, mechanical, crop rotation and biological).

(iii)Soil, water and agronomy.

(iv)Commercialization adoption and continuous improvement of CA-based technologies.

(v)Policy and institutional framework for the adoption of CA.

Details available at: http://www.scac2014.org/

IECA (International Erosion Control Association) and NZIHT (NZ Institute of Highway Technology) are excited to deliver the premier erosion and sediment control event for 2014.

The theme for this year's conference is "Cost and Complexity, or Common Sense: Process versus Outcome". Across Australia and New Zealand we have seen an increasing regulatory push regarding environmental compliance. The driving factors behind this relate to community expectations, politics and environmental stewardship.

However, there has been significant concern within the construction industry about unintended side-effects related to the increased focus on environmental compliance. In some instances, increased compliance doesn't necessarily relate to the quality or effectiveness of on-ground erosion and sediment controls as much as it relates to the complex processes and documentation that must be produced. There is some concern that the increasing cost and complexity of compliance isn't necessarily translating to improved environmental outcomes.

At this conference we will explore some of these issues through a series of keynote addresses, presentations and open forums, seeking cost-effective, common-sense solutions to the increasing cost of compliance. We will investigate the effectiveness of processes to achieve the desired outcomes – it's bound to generate plenty of discussion so join us in September and get your erosion-and-sediment-control juices flowing!

More details please go to:

http://www.austieca.com.au/events/event/cost-and-complexity-or-common-sense-process-vs-outcome

Environmental Connection Conference

The World's Largest Soil and Water Event and it's 2015 Co-location with IFAI's Geosynthetics Conference

Portland Convention Center

Portland, Oregon
February 15–18, 2015

IECA is Currently Calling for Presentations

This is the premier educational event for the erosion, sediment control and stormwater industry. Environmental Connection combines intense, full and half day training courses with topic-focused technical sessions and the largest expo of its kind.

Over 4 days, Environmental Connection provides peer–reviewed education, products and technology which address four educational tracks: Erosion and Sediment Control, Stormwater Management, Surface Water Restoration, and MS4 Management.

6 Reasons Why You Should Attend Environmental Connection:

Bigger than ever: In 2015, the Environmental Connection Conference will be a co-located event with the Industrial Fabrics Association International (IFAI). This means you will meet more of the industry's brightest minds.

Continue your education: Learn from presentations of the latest case studies and topic-focused technical sessions.

Stay creditable: Earn Professional Development Hours (PDHs) by attending technical sessions.

Build business relationships: We have numerous networking and social opportunities so you can make connections with future clients or even connect with potential employers/employees.

Stay ahead of the curve: Keep up-to-date in today's newest technologies in erosion and sediment control products and services at our two-day expo.

Support a cause: Attending conference helps to show your support for IECA, which is an non-profit organization that provides education, resource information and business opportunities for professionals in the erosion and sediment control industry.

Details at: http://www.ieca.org/conference/annual/ec.asp

1. Visiting Assistant Professor - Physical and Environmental Geography

The University of Iowa Department of Geographical & Sustainability Sciences invites applications for a Visiting Assistant Professor position for academic year 2014/2015, with a possible one year extension. We seek candidates with the ability to teach courses in physical and environmental geography. Instructional assignments will depend on the candidate's expertise and will be consistent with the programmatic needs of the department and students. The ability to teach such courses as biogeography, environmental policy, or water resources is desirable, but other courses in the candidate's field are welcome. Teaching will include both lower and upper division courses. The appointment will begin in August 2014.

A PhD or equivalent terminal degree in Geography or related field is preferred at the time of appointment. Applicants who have completed significant progress toward a doctoral degree by the start of the appointment will be considered. Salary is commensurate with the experience and qualifications of the candidate. Candidates must submit applications online at http://jobs.uiowa.edu/(requisition # 64248). The submitted application materials should include a cover letter, curriculum vitae, a statement of teaching interest, evidence of teaching ability and contact information for three letters of recommendation. Screening of applications begins May 15, 2014 and will continue until the position is filled.

Questions regarding this position can be directed to Dr. Marc Linderman (marc-linderman@uiowa.edu or 319 335-1451).

The Department and the College of Liberal Arts & Sciences are strongly committed to diversity; the strategic plans of the University and College reflect this commitment. All qualified applicants are encouraged to apply and will receive consideration for employment free from discrimination on the basis of race, creed, color, national origin, age, sex, pregnancy, sexual orientation, gender identity, genetic information, religion, associational preference, status as a qualified individual with a disability, or status as a protected veteran. The University of Iowa is an equal opportunity/affirmative action employer.

Details at: http://www.earthworks-jobs.com/geography/iowa14041.html

2. Professor in Human Geography

THE UNIVERSITY OF AUCKLAND
NEW ZEALAND
Te Whare Wānanga o Tāmaki Makaurau

The University of Auckland seeks to appoint a dynamic researcher to take a leadership role as a Professor in Human Geography in the School of Environment (ENV) which is located in the Faculty of Science.

Human Geography within the School of Environment was ranked first amongst similar groupings during the most recent round of New Zealand's Performance Based Research Fund. Academics in this field contribute to a vibrant teaching programme. Existing research and teaching strengths within the School include social, cultural, health, environmental and economic geography. The School wishes to appoint a Professor to further develop the School's research and teaching in Human Geography. The School seeks applications from exceptional candidates. A willingness to collaborate with a wide range of researchers within the School and elsewhere in the University is highly desirable.

Applicants will possess an outstanding research record in Human Geography as demonstrated through publications in top-ranked journals and/or books and success in attracting research funding. The successful candidate will be expected to develop a strong research programme in Human Geography, establish research collaborations within the university and with external agencies and attract external research income. The candidate will also be expected to take a leadership role in the refinement of research-led undergraduate and postgraduate teaching in Human Geography, and build a cohort of postgraduate research students. The School of Environment includes academics from a wide range of backgrounds including earth science, ecology, physical and human geography, geology, environmental science and environmental management. Staff in the School are prominent in a range of national and international research programmes involving collaborators in universities, government research institutes and industry.

Further details concerning this position may be obtained by visiting the University's Job Opportunities web site: https://www.opportunities.auckland.ac.nz/ Information on the School of Environment can be found at www.env.auckland.ac.nz

Applications close Monday, 30 June 2014.

For further information go to www.auckland.ac.nz/opportunities

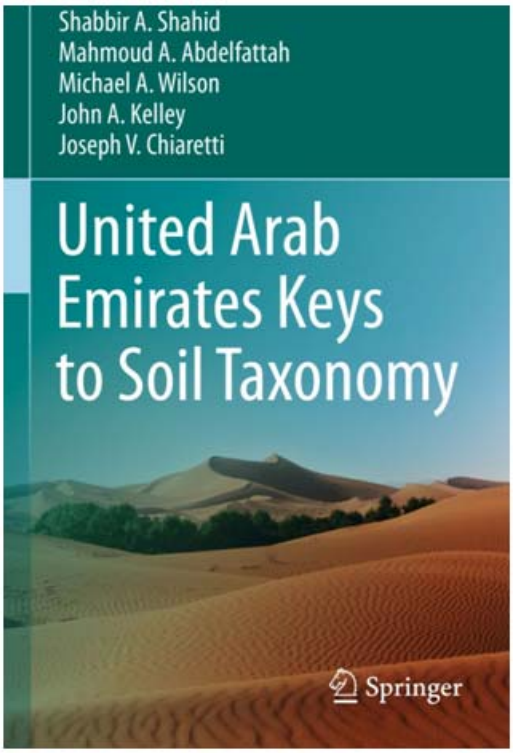
International Training Workshop on Soil & Water Conservation and Dryland Farming for Developing Countries

The Training Course on Soil & Water Conservation and Drland Farming for Developing Countries was held in 2-24 April of 2014 in Yangling, China. There are 19 trainees from developing countries. During 3 weeks training they have lectures and field trip on soil & water conservation and dryland farming. WASWAC President Li Rui gave a detailed presentation of Soil & Water Conservation. All of the trainees expressed their strong interest with WASWAC, and finally 12 trainees became the members of our association, they are: Mr MASUPHA MASILO PETER, Mr GAUTAM KAMAL PRASAD, Mr BIST•HEM RAJ, Mr HUSSAINI•GBONGBO MOHAMMED, Mrs MANZI•MWAMVITA SULEIMAN, Ms ALI•MWANAMANGA HAJI, Mr GARUSINGHE•RANJITH, Mrs GUNASEKARA•MADURAPPERUMAGE, Mr SILVA LINDAMULAGE LAKSIRI, Mr BEDANE•SEMBETO WARIYO , Mr GURE•SEKATA KENEA and Mr NTSEBANE SANAHA JOSEPH. Welcome our new members!!!

A group photo of trainees with Professor Li Rui, the president of WASWAC

Visiting in the field experiment base

Book Introductions



The International Center for Biosaline Agriculture (ICBA) and the Environment Agency - Abu Dhabi (EAD), announced today the publication of a book on classification of soils in the United Arab Emirates. *The United Arab Emirates Keys to Soil Taxonomy* is the result of a joint cooperation between ICBA, Environment Agency – Abu Dhabi (EAD), and United States Department of Agriculture – Natural Resources Conservation Service (USDA-NRCS). The book provides information for keying out the soils of the United Arab Emirates and the arid Gulf Cooperation Council Countries (GCC) into separate classes and to provide a guide to associated laboratory methods.

Dr Ismahane Elouafi, Director General of ICBA said that science-based soil information will support decision makers in making informed decisions on future land use planning based on the capacity of different soil regions in the UAE. “It is important to locate soils that are suitable for agricultural expansion to reduce the gap between local food production and imported food. In addition the use of suitable soils for agriculture will optimize resources used for production and save the environment,” added Dr Elouafi, who suggested that the agriculture technologies developed in the UAE can then be successfully adopted in the region, where such soils may exist, saving time and financial resources.

H.E Razan Khalifa Al Mubarak, EAD's Secretary General stated that the *United Arab Emirates Keys to Soil Taxonomy* is an essential tool for further soil classification studies in the country. She further added that the challenge of protecting and managing the environment is significant and must be based on robust scientific and technical knowledge. "Knowledge and understanding of soil is critical, particularly in an arid environment, as the resources in soil are scarce and must answer competing demands from agriculture to urban development, mineral exploration, and infrastructure development. This book will facilitate national land use management and planning and will be equally useful for agricultural graduates studying soil science" H.E Al Mubarak added.

Dr Shabbir Shahid—Senior Soil Scientist at ICBA and the principal author of the book—defines soil taxonomy as the systematic categorization of soils based on distinguishing characteristics as well as criteria that dictate choices for different uses. He describes the book on the UAE keys to soil taxonomy as a user friendly guide for those who are searching soils suitable for various uses. This helps locate and match soils of special characters to the appropriate usages resulting in optimal use and environmental protection.

"The book specifically addresses soil taxonomy in the UAE; however, it is equally good for use in the GCC, which have major common soil orders, (*Aridisols* and *Entisols*)" said Dr Shahid, who added "I believe soil researchers in future will benefit from this valuable resource in their endeavor to assess soil resources in the UAE and the Gulf Region. This will lead to transfer of technologies established on similar soils and environmental conditions in the region where such soils may exist, and accordingly save significant investment."

ICBA has taken many initiatives to contribute to its host country, the UAE. The initiative of publishing *The United Arab Emirates Keys to Soil Taxonomy* is a follow up to ICBA's contribution to soil mapping and development of the Abu Dhabi Soil Information System (ADSIS) done jointly with Environment Agency – Abu Dhabi, the ADSIS later updated to the United Arab Emirates Soil Information System (UAESIS).

"*The United Arab Emirates Keys to Soil Taxonomy* will be the only source to learn about UAE soil taxa, and thus this will be the preferred book for agricultural graduates studying soil science," concluded Dr. Shahid and Dr. Mahmoud Abdelfattah, co-author of the book, who extended their deepest gratitude to the various partners who supported the project mainly: ICBA, EAD and USDA-NRCS.

WASWAC MEMBERSHIP APPLICATION/RENEWAL FORM (Issued 120501)

(For applicants from all countries)

Name: (Ms./Mrs./Mr./Prof./Dr.)_____ Gender: □F □M

Institution: _____

Postal address: _____

State/Province: _____ Zip/Postal code: _____ Country: _____

Phone: _____ Fax: _____

Emails (Please give at least 2 addresses to ensure uninterrupted contact): (1)_____

(2)_____ (3)_____

My specialized field(s): _____

Please sign me up for the WASWAC membership in category*: □1(IM)□2(LM)□3(OM)□4(SM&GM)

Membership for the year(s)_____ @US$_____= US$ _____

Donation for developing country membership, etc. US$ _____

Donation to the Moldenhauer Fund US$ _____

Total US$ _____

***Membership categories & rates** from July 18, 2005, amended March 3, 2007 and March 4, 2010.

1. IM (Individual membership): US$20 for 5 years for developing countries (In China, members pay 130 yuan RMB); US$40 for 5 years for developed countries and persons working in international organizations worldwide.

2. LM (Life membership): US$80 for developing countries (In China, members pay 520 yuan RMB); US$160 for developed countries and persons working in international organizations worldwide. Persons who have passed their 60th birthday pay only half of these LM rates.

3. OM (Organization membership): For universities, research and implemental institutions, government agencies, NGOs, societies, associations and international organizations, etc. Persons belonging to an Organization member will receive the same online products and services as the other two above categories: $100/year for an organization with up to 150 persons; $150/year for an organization with up to 300 persons: $200/year for an organization with up to 500 persons; and $10/year for an additional 100 persons or part thereof.

4. SM&GM (Student membership & Gift membership): US$5/year worldwide, to be purchased to give to colleagues, friends, students, etc.

▲ **How and where to submit this form and the money**: You may send this form by e-mail (preferred), fax or post – and membership due – to:

Dr. Xiaoying Liu. WASWAC Treasurer, c/o IRTCES. No. 20 Chegongzhuang Road West, Beijing 100048, China. Tel: +86 10 68786413; Fax: +86 10 68411174; Email: waswac@foxmail.com; waswac@163.com . Membership fee can be sent through **Check, Bank Draft, Bank Transfer** and **WESTERN UNION**.

For sending money by foreign wires through a bank, please give the following information to your bank:

Name of Receiver (A/C Holder's Name): Liu Xiaoying

Bank Name and Address: Bank of China Beijing Branch, No. 2 Chao Yang Men Nei Da Jie, Dongcheng District, Beijing, 100010, P R China

A/C NO.: 3467 5879 1740; **Swift code:** BKCH CN BJ 110

Message to write on the Bank Sheet: WASWAC Membership due for Ms./Mrs./Mr./Prof./Dr. ....., Country .....

NOTE: 1. Do not deduct the bank fee from the amount of money to send. **2.** For sending money by wire/bank transfer or check please add US$7 per transaction to compensate for the charge at the receiving bank in Beijing. This additional charge does not apply for **WESTERN UNION** or any payment of US$50 or more.