IWSS Newsletter

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International Weed Science Society July 2001

President Duke's Comments

Since the January Newsletter, I attended the Southern African (more than South Africa) Weed Science Society meeting in Pretoria, South Africa and visited the venue of our 2004 meeting. Their meeting was well organized, with a good blend of science and socializing. They run a good meeting. I thank the organizers for inviting me to attend. After the meeting, Dr. Chris Mulder, Chair of the Organizing Committee for our 2004 meeting visited Durban, our 2004 venue. The Southern African Weed Science Society (SAWSS) will co-host the event. In Durban, the meeting will be at the International Convention Centre. This is a truly outstanding venue. The last International AIDS conference was held at this site last summer. Feedback from a scientist friend who attended this was very positive. She had a wonderful time and felt that the meeting was very well run. There are many luxury hotels nearby. There is a five-star Hilton attached to the Centre and there are several excellent hotels on the beach within walking distance. See the IWSS web page for pictures of the Centre and of Durban. There are many nearby by possibilities for excursions. The 150-year-old Durban Botanical Gardens was all that we had time for, but they were fantastic.

Drs. Baruch Rubin and Charlie Reinhart will co-chair of the Scientific Program Committee. Baruch has had considerable experience in organizing international scientific programs and Charlie has organized South African programs. They should make an excellent team in putting together a program that will attract weed scientists from all over the world and from many subdisciplines. Please send any suggestions that you have to either of them (rubin@agri.huji.ac.il and creinhar@nsnper1.up.ac.za). Please respond positively to them when they ask for your help.

IWSS in action

IWSS sponsored a weed science short course entitled Fundamentals of Modern Weed Control with Herbicides in Bangkok, Thailand in May 2001. This is the result of an initiative began more than two years ago by former President Dr. Ricardo Labrada. Dr. Bernal Valverde has a more detailed feature on this elsewhere in the newsletter. A similar course in Latin America to be held late this year or early next is being planned. We hope that IWSS can continue to sponsor such programs between our congresses every four years.

Are you over due?

All of this takes money. So, if you have not paid your 2001 dues, please do so immediately. We have to continue our activities. Instructions for dues payments are provided elsewhere in the newsletter and on our web page. When you renew, please send us your email address. And please let us know if your postal or email addresses change.

Once more, I would like to remind you that our web page address has changed (see notice elsewhere in the newsletter). We have made several changes in the web page. Please contact me with any comments about the web page or items that you would like to add to the web page. Note that the newsletters are now on the page as a pdf file for printing. Please email me (sduke@olemiss.edu) if you would like us to email you when the next newsletter goes on line in lieu of us mailing it to you. This will save the society postage expenses, which will allow us to spend the money on other societal activities. Send any weed-related information (meetings, publications, etc.) that you would like publicized on our web page to me (sduke@olemiss.edu) and in our newsletter to Dr. Jerry Doll (jddoll@facstaff.wisc.edu).

Speak out

Please let us hear from you regarding potential IWSS activities and your interest in participating in them. I will be calling on more of you in the near future for your assistance. Have a good summer and fall.

President, Steve Duke

IWSS board meets in China

With several of the present and past IWSS Board members participating in the 18th Asian Pacific Weed Science Society (APWSS) Conference in Beijing, China, the opportunity was used to hold a mini Board meeting on 30 May 2001. Current Board members attending the meeting were Dr. Ricardo Labrada (Past President and FAO Representative), Dr. Anis Rahman (Vice-President), Dr. Ze Pu Zhang (President of the APWSS) and Dr. Bernal Valverde (Secretary-Treasurer). The major topic on the agenda was to discuss how IWSS could assist and contribute to the APWSS and become more widely known and accepted by the weed scientists of the region. Conversely how can the Asian-Pacific region assist the IWSS and have more input into the upcoming fourth Congress? Suggestions included: IWSS sponsoring/ assisting with workshops/symposia on herbicide resistance and invasive weeds in the region and also offering awards for best papers and posters.

There was consensus on suggesting the Board of Directors consider sponsoring and organizing a session on one of the above topics for the 19th APWSS Conference to be held in Manila in 2003. The APWSS can assist with increasing IWSS membership in the region, provide more material for the Newsletter, actively promote IWSS and take an active role in organizing the program for the 4th Congress. Other items deliberated included the IWSS web page, Newsletter, 4th Congress, the Awards Committee and a possible code of ethics for the Society. It was suggested that the Society must ensure good participation of all the African countries in the 4th Congress.

Anis Rahman, Vice-President

Weed science courses and workshops

An FAO regional course on weed ecology and competition took place in the Melkassa Agricultural Research Centre (120 km from Addis Ababa) Ethiopia from 14 to 20 May 2001 for African English speaking-countries. Attendees were from Ethiopia, Gambia, Ghana, Kenya, Malawi, South Africa, Zambia and Zimbabwe. The instructors of the course were Dr Cesar Fernandez Quintanilla from Spain and the FAO Weed Officer, Dr. Ricardo Labrada. Participants learned how to study population dynamics, weed seed banks, weed competition and similar topics.

The course also had discussions on major weed problems in these countries. It was clear that parasitic Striga weeds still are serious constraints to cereal production in Africa, and Ethiopia is also affected by *Orobanche ramosa* in legumes and vegetables. *Imperata cylindrica* affects some of these countries, particularly Ghana; *Prosopis juliflora* introduced in Ethiopia and South Africa without any risk assessment is now invading arable lands of these countries. Although its presence has brought wealth to some farmers producing some useful products, the plant constitutes a serious risk to food production. *Parthenium hysterophorus*, a Compositae species, presumably introduced as a contaminant in food aid coming from North America in the 80s, has spread all over Ethiopia in cropping and waste areas, and has become the country's worst weed. Zambia, Zimbabwe and Malawi also face serious problems of water hyacinth in dams and rivers and these countries have no national programs for aquatic weed control. Ethiopia has a relatively strong weed science society with large membership in the country.

The next regional course on weed ecology and competition will be for countries of Middle East and North Africa and will take place in Amman next September.

An FAO regional workshop for Asia and the Pacific region on *Echinochloa* control occurred on 27 May 2001 in the premises of the Plant Protection Research Institute in Beijing, China. Specialists came from Australia, China, Japan, Korea, Malaysia, Thailand, Vietnam, Sri Lanka and USA. Dr. Bernal Valverde from Costa Rica also attended the workshop and delivered an interesting presentation regarding the problems of *Echinochloa*-propanil resistance in Central America. The meeting was chaired by Prof. Kim from Kyungpook University and he and Dr. Ricardo Labrada (FAO Weed Officer) chaired the discussions. Contact Dr. Labrada at the FAO for a summary of the major findings of the workshop.

The workshop resulted in these recommendations: 1) Prepare and publish an *Echinochloa* identification manual, 2) increase efforts to clean machinery to avoid spreading *Echinochloa* in rice fields, 3) incorporate seed bank depletion in the *Echinochloa* control strategy, particularly the use of crop rotation to break the cycle of these weeds, 4) plant certified seed; when this is not possible, emphasize the use of weed-free seeds and 5) use deep flooding to control weeds where possible.

A FAO Sub-regional course on water weed control for countries in the Niger basin took place from 5 to 17 March in Bamako, Mali, with the participation of technicians from Benin, Mali, Niger and Nigeria. The main instructors of the course were Dr. Bourema Dembele from Institut D'Economie Rurale, Bamako, and Mr. Messmer Zebeyou from Research Station La Mé, Côte D'Ivoire. They presented the theoretical and practical techniques for rearing and releasing specific bioagents to control water hyacinth, water fern and water lettuce. The course was organized within the framework of FAO project on aquatic weed control for basin of Niger River. The FAO Weed Officer also participated in the first week of the course giving the materials and field practices related to weed survey.

Participants will now set up units to rear the weevils *Neochetina eichhorniae* and *N. bruchi*, for water hyacinth control; *Neohydronomus affinis* for water lettuce control and *Cyrtbagous salviniae* against Salvinia fern. The countries will receive colonies of the insects from the existing rearing units in Mali and Côte D'Ivoire.

IWSS short course on the Fundamentals of Modern Weed Control with Herbicides was held at Kasetsart University (KU) in Bangkok, Thailand, from 22 to 25 May 2001. The course was supported financially by the Global Crop Protection Federation (GCPF). Fifteen young weed scientists from nine Asian countries (Bangladesh, Cambodia, India, Indonesia, Korea, Nepal, Sri Lanka, Thailand, and Vietnam). Basic topics related to chemical weed control covered in the course included herbicide physical-chemical characteristics, classification, formulation and compatibility, soil behavior of herbicides and herbicide physiology.

Participants were especially interested in herbicide resistance because resistant weeds are becoming increasingly frequent and widespread in Asia, especially in rice. The course was taught by IWSS Secretary-Treasurer Dr. Bernal Valverde, Prof. Rungsit Suwanketnikom from KU Research and Development Institute, and Dr. Chanya Maneechote from the Dept. of Agriculture (Thailand). IWSS Past President, Dr. Ricardo Labrada, lectured on Herbicides and IPM.

Dr. Maneechote was also in charge of all local arrangements. IWSS would like to acknowledge her great contribution to the course and her excellent job in organizing this very successful activity. We are also indebted to GCPF for making it possible to conduct this course. IWSS is promoting training activities worldwide as a contribution to advance weed science and to stimulate weed scientists to become involved in applied research and improve their extension capabilities for the benefit of their own countries and regions. A similar course in Spanish scheduled for later this year will target young weed scientists from Latin America. The course will be held in Costa Rica, probably in November 2001, pending financial support. If you are interested in participating or would like to propose a candidate, please contact Dr. Valverde (bev@kvl.dk or ideatrop@racsa.co.cr). Further details will appear in due time in our web site.

Herbicides and Environmental Impacts
As a joint initiative, the Brazilian Agricultural Research Corporation - EMBRAPA and No-Tillage Association - APDC organized a workshop on the environmental impacts of herbicides in no-tillage systems as compared to conventional systems. Professionals from universities, research institutes, companies and representatives of agricultural producers in different Brazilian regions discussed research and extension activities that have been carried out in Brazil and other countries to identify problems and solutions. No-till systems markedly reduce soil erosion, an important problem in tropical regions. No-till systems are used on about 13 million ha in Brazil in soybean, wheat, corn, sugarcane and reforestation, and the area increases each year. The current concern is to assess the actual situation of environmental impacts of herbicide use with increasing no-tillage practices.

New publications

A book titled **Integrated weed management: Explore the Potential** has been published by the Canadian Expert Committee on Weeds. The book has the symposium papers from their 2000 Meeting. Details on how to obtain a copy can be found on the ECW web site at www.ecw-cem.org.

Teaching Striga biology and control in primary schools in Bénin by G. Gbèhounou. Tales on Striga, written in French by Dr. Gualbert Gbèhounou, have been published by the "Institut National pour la Formation et la Recherche en Education (INFRE)" (National Institute for Training and Research for Education) in Bénin. The booklet entitled "Kao et les Pharaoniens (Les contes Striga)" is meant for primary schools. The idea is to teach biology and control measures of Striga in a simple and attractive language for children.

The tales are about Striga's origin, beautiful attractive flowers, fecundity, dormancy, wild hosts, need of germination stimulant, control measures and community mobilization for Striga control. The tales are accompanied by illustrations, which report on infestation and damage to maize, millet and sorghum by *S. hermonthica*, infestation and damage to cowpea (*Vigna unguiculata*) by *S. gesnerioides*, wild hosts of *S. asiatica*, *S. gesnerioides* and *S. hermonthica*.

The appendix gives information on Striga as a pest, crops that it parasitizes in Bénin, its survival strategy and control measures. Also included are exercises for readers to check their knowledge of Striga biology and control after reading the booklet.

For more information or to buy a copy of the booklet please contact: Dr. Ir. Gbèhounou Gualbert, LDC/INRAB B.P. 128, Porto-Novo/République du Bénin. E-mail: LDCSTRIG@BOW.INTNET.BJ.

Weed Management in the Humid and Sub-humid

Tropics by R.J. van Rijn with contributions by L. 't Mannetje and A.H. Pieterse (234 pages, KIT Publishers, Amsterdam, 2001). Abundant weed growth in the humid and sub-humid tropics is one of the most serious constraints in crop production, pasture establishment and maintaining water resources. This book compiles historic and current data on the biology and control of weeds within the context of crop and pasture husbandry and aquatic habitats. Chapters cover topics on weed ecology, the nature of the negative values of weeds, performance of crops in tropical ecosystems, important weeds in savannahs and forests, weed management in specific crops, pastures and aquatic settings. The paperback book can be ordered on line at http://www.kit.nl.publishers, by FAX at (31) (0) 20-568-8286 and by mail at KIT Publishers, P.O. Box 95001, 1090 HA Amsterdam, The Netherlands ($32.50 US dollars).

Odds and ends

Asian-Pacific Herbicide Resistance Working Group (APHRWG). During the 18th APWSS Conf. in Beijing in May 2001, management of herbicide resistant weeds in the Asian-Pacific region was discussed and the Asian-Pacific Herbicide Resistance Working Group (APHRWG) was formed. Dr. Kazuyuki Itoh (NIAES, Japan) was elected as a chairperson. He would like to bring together both academia and the industry to tackle the weed resistance problems facing the Asia-Pacific region. An E-mail list be created to include representative, scientists, manufacturers, distributors and extension personnel throughout the region. Anyone may join the group by sending your E-mail address to Dr. K. Itoh: kitoh@niaes.affrcf.go.jp

British Study Discounts Biotech "Super Weeds." A decade-long study of genetically engineered crops in England may calm fears that such plants could become "super weeds" that invade and push out native plants. The results of the study, published this week in the journal, Nature, said genetically engineered corn, potatoes, sugar beets and canola are not likely to become weeds. The study's leader said it demonstrated conclusively that genetic modification does not make them more invasive. Critics said more tests like the British study must be done before scientists can make a determination of the ecological risks of genetically engineered plants.

Welcome to new life time members:
Ahmet Uludag, Chief Researcher at Weed Science Lab. Adana Plant Protection Research Institute, Turkey and **Kapila Gamini Prematilake ,**Tea Research Institute Low Country Station, Sri Lanka.

Weed Science Alive and Well in India. We received information regarding the National Research Centre for Weed Science from the new director, Dr. N.T. Yadurau. The Centre was created in 1989 and Dr. Yadurau and his staff coordinate the weed science activities at 22 location throughout India. A new building for the Centre was inaugurated in April 2001, launching an increase in weed science activities. This includes a semiannual newsletter from the Centre called "Weed News." The first issue reviews the development of weed science in India, presents research highlights from the Centre and contains many other items of interest. The inaugural and subsequent issues are available upon request to the editor, Dr. J.S. Mishra, Nat. Res. Centre for Weed Sci., Maharjpur, Adhartal, Jabalpur - 482004 (MP), India. Or you may email them at nrcws@bom6.vsni.net.in

Brazilians Form Herbicides in the Environment Committee. After herbicides are applied, various physical, chemical, physio-chemical, and biological processes determine their behavior in the environment. To motivate and support research activities that will improve the understanding of the complexities of herbicide behavior in the environment, the Brazilian Weed Science Society (www.sbcpd.com.br) has named a committee on Herbicides in the Environment. The committee's web site disseminates information on this issue and anyone interested in this topic is encouraged to check their site (www.cnpma.embrapa.br/herbicidas/).

Transgenic Plants and World Agriculture is 46-page report prepared under the auspices of the Royal Society of London, the U.S. National Academy of Sciences, the Brazilian Acad. Sci., the Chinese Acad. Sci., the Indian National Science Academy, the Mexican Acad. Sci., and the Third World Acad. Sci.. It was published by the National Academy Press, Washington, D.C. in July 2000 and is available online as a pdf download at: http://www.nap.edu/html/transgenic.

It has chapters on The Need for GM Technology in Agriculture, Examples of GM Technology That Would Benefit World Agriculture, Transgenic Plants and Human Health and Safety, and Transgenic Plants and the Environment. No weed is mentioned therein. The words weed, *Striga*, *Echinochloa*, *Orobanche* in the Latin or the common names do not appear as constrains that transgenics might help.

Where have we gone wrong in explaining world agricultural needs and how they can be solved?

Web site. The Canadian Expert Committee on Weeds has a web site at www.ecw-cem.org

Coming Events

2001

August 13-17 — **6th International Symposium on Adjuvants for Agro-chemicals**
Amsterdam, The Netherlands
Contact: Dr. Hans de Ruiter, ISAA 2001 Foundation, PO Box 83, NL-6870 AA Renkum, The Netherlands Fax: 31-317-350-812
Email: H.deruiter@issa2001.com
Web page: www.isaa2001.com

Nov. 12-15 — **British Crop Protection Council Conference - Weeds**
Brighton, England
Contact: BCPC Conf. Secret., 5 Maidstone Bldgs. Mews, Bankside, London SE1 1GN
Email: conference@bcpc.org Web site: www.bcpc.org FAX: +44 (0) 20 7940 5577

Nov. 25-28 — **Canadian Expert Committee on Weeds**
Québec City, Québec, Canada
Contact: Danielle Bernier, Arrangements Committee Chair, at dbernier@agr.gouv.qc.ca

Nov. 26-30 — **Latin American Weed Association Conference.**
Maracaibo, Estado de Zulia, Venezuela
Contact: Werner Gutierrez (Vice-President of ALAM) Email:
wernergutierrez@cantv.net or bernarde@latinmail.com or xvcongresoalam@cantv.net

2002

Feb. 10-13 — **Weed Science Society of America annual meeting**
Reno Hilton, Reno, Nevada
Contact: Joyce Lancaster, Exec. Sec. WSSA, P.O. Box 7050 Lawrence, KS 66044 USA
Email: jlancaster@allenpress.com tel: 785 843-1235, extn. 250 FAX 785-843-1274

March 11-13 — **European Weed Research Society Workshop on Physical & Cultural Weed Control**
Pisa, Italy
Contact: P. Bàrberi, Scuola Superiore di Studi Universitari e Perfezionamento S. Anna, Via G. Carducci 40, 56127 Pisa, Italy
Tel. +39 050 883 449 Fax: 39 050 883 215
Email: barberi@sssup.it Web site: www.ewrs.org/physical-control

June 24-27 — **12th European Weed Research Society Symposium**
Wageningen, The Netherlands
Contact: EWRS Symposium W2002, P.O. Box 28, NL-6865 ZG Doorwerth, The Netherlands
Email: ingrid.sanders@wxs.nl; FAX +31 317 319652

August 12-15 — **XXIII Brazilian Weed Science Congress**
Porto Alegre, State of Rio Grande do Sul, Brazil
Contact: Dr. Erivelton Roman (eroman@cnpt.embrapa.br) or the Brazilian Weed Science Society at SBCPD (sbcpd@cnpso.embrapa.br)

August 4-9 — **10th IUPAC International Congress on the Chemistry of Crop Protection - Innovative Solutions for Healthy Crops**
Basel, Switzerland
Contact: IUPAC 2000, c/o Novartis CP AG, WRO-1060.1.42, CH-4002 Basel, Switzerland;
Fax: 44 61 697 7472
Web page: www.cp.novartis.com/iupac2000

Member forum

Delaying rice and other crop transgene introgression into weeds and mitigating the effects. J. Gressel, Plant Sciences - Weizmann Insti. Science - Rehovot, Israel.

One of the best traits of transgenic herbicide resistant crops is that closely-related weeds can then be selectively controlled; that is until the transgene crosses into the related weed and becomes established. If normal genes have been moved between the crop and weed introgression of transgenes is inevitable (Gressel and Rotteveel 2000). Still, the inevitable can be delayed according to the varieties chosen and the failsafe mechanisms used. Perhaps it can be delayed longer than the time it would take weeds to evolve resistance to the particular herbicide through its own mechanisms. The inevitable can be made less relevant by using genes in tandem with the resistance genes that are positive or neutral for the crop, but deleterious to the weeds (Gressel 1999). Such genes will be inherited as linked genes, and should render an individual that introgresses them as non-competitive with wild type cohorts. The mitigating genes can be useful to prevent the process of crop ⇨ volunteer weed ⇨ feral weed.

Rice and red rice, both *Oryza sativa* can be used as an example for the above theoretical considerations.

1. Transgenes should move very rapidly from hybrid rices, with their extruded anthers to red rice.
2. Introgression from varietal rice to red-rice will be slower as a function of cleistogamy, overlapping flowering dates, level of uncontrolled red rice in proximity to rice.
3. The rate of introgression can be slowed (but not stopped as intimated by Daniell (1999) by having the resistance gene in the plastome (plastid genome) (Gressel 2000). (With most crops maternal inheritance is not absolute. Typically there is 0.2% pollen transfer, and with a high selection pressure herbicide, copious pollen, herbicide selection of resistance pollen, copious seed production, then introgression will occur.
4. The split gene/joined protein approach suggested by Sun et al. (2001) with part of the resistance gene in the chloroplast genome and part in the nucleus, will delay somewhat but not much more. The delay will be much greater if part of the gene is embedded in the chondriome (mitochondrial genome) and part in the plastome.
5. Terminator Technology. The much cursed 'terminator' technology (Crouch 1998) may be an ideal tool to prevent transgene movement. Genes are inserted into the crop, that when activated just before planting, allow the crop to have one generation of active pollen. It self destructs and thus transgenes cannot move to weeds, except in or near fields propagating certified seed.
6. Single generation transformation. The seeds are infected with a disarmed virus (e.g. Choi et al., 2000) or endophyte carrying a herbicide resistance gene. The vector must not be sexually transmissible.
7. Mitigation of resistance can occur (in theory) if the resistance gene is flanked by TM (transgenetic mitigator) genes, that will be inherited as a tightly linked complex. TM genes appropriate for rice could be: (a) anti-shattering genes; (b) dwarfing genes; (c) anti-secondary dormancy genes (Gressel 1999); or (d) a gene that converts a pro-herbicide to a herbicide. These genes would be good for rice, and would prevent it from becoming feral, yet would render red rice non competitive with taller, shattering, red rice that has dormancy and can remain in the seed bank. The pro-herbicide to a herbicide gene would allow control of volunteer weed populations as well. Such genes available that can be tested.
8. The best mitigation would coupling the TM genes to a split resistance gene.

TM genes have been suggested for other transgenic crops:

- for biennial crops – genes that promote biennialism, as most of the weeds that will introgress the genes are annuals. These genes will prevent premature flowering (bolting) of the crop.
- for vegetatively propagated crops and forest trees – pollination sterilants

Unfortunately, neither industry nor regulators seem to have the long term interests of agriculture as a top priority. Herbicides are needed to control weeds that are closely related to crops, for now and for years to come. Thus, the use of multiple failsafe mechanisms to delay and mitigate introgression of transgenes encoding herbicide resistance is imperative to keep good herbicides available.

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Editor's words

Loss of Pioneers

Among the signs of a maturing discipline is the passing of weed science leaders around the world. It seems we have lost many colleagues, some while still fully active professionals, in the past several months. Take a moment to reflect on their contributions and give thanks for their leadership, example and inspiration. May they live on in our hearts and actions.

Marcos R. Vega passed away in Feb. 2001. Dr. Vega was known as the "Father of Weed Science" in the Philippines. He was also the first president of the Asian-PacificWeed Science Society (APWSS) and a past president of the International Weed Science Society. Dr. Vega trained many local and international graduate and undergraduate students in weed science.

Juan Pancho, also of the Philippines, has passed away in May, 2000. Dr. Pancho was a renowned plant taxonomist and was a coauthor with Prof. LeRoy (Whitey) Holm and others on the volumes on the major weeds of the world.

Dan Hess died in Aug. 2000, at the age of 53 from cancer. Dr. Hess was president of the WSSA in 1998. Dan was an exceptional communicator and brilliant scientist.

Werner Koch, professor and recently retired founder and director of the Institute of Agroecology in the Tropics and Subtropics of the Univ. of Hohenheim, Germany, died in Nov. 2000. Dr. Koch was an honorary member of the WSSA and one of the world's leaders in development and transfer of weed management technology to the third world.

Larry Mitich died in Aug. 2000, after a long and distinguished career as an extension weed scientist in North Dakota and California, USA. Dr. Mitich will long be remembered for the many papers he penned on the Intriguing World of Weeds.

R. Gordon Harvey died in June, 2001, at age 55 after a three-year struggle with ALS (Lou Gehrig's disease). Dr. Harvey was a weed scientist at the Univ. of Wisconsin-Madison for more than 30 years. He directed the research studies of 44 graduate students and was widely recognized for his creative, energetic and thorough approach to weed research.

Times are changing. This statement could be applied to nearly any time period and human endeavor. In the context of weed science, the signs of changes are every present. The above list of some pioneers who have gone before us is one proof of change. The other is the rapid evolution of weed science research programs to embrace weed ecology and biology. This change has been ongoing for several years and is now bearing abundant fruit. We will soon have a generation of weed scientists whose training is solidly based on plant biology and ecology. The book "Weed Ecology" may serve as a marker of when we turned the corner in putting these principles front and center in our discipline.

By making these comments I am fully aware of my North American bias. Many countries and regions have done excellent weed biology and ecology work for decades if not centuries. And the topic has been addressed by many over the years in my part of the world, too. However, the fact that graduate training, undergraduate courses, professional meetings, workshops and symposia use the terms weed ecology and biology so frequently tells me our discipline has entered a new era. This was impressed upon me a couple of years ago when I read the book "Expanding the Context of Weed Management," (editor D. Buhler. Haworth Press, Binghamton, New York, USA). Nearly all the chapter authors are all of this new generation of thinkers and doers in weed science and collectively they present a most interesting commentary and vision of our discipline.

Jerry Doll, Editor

Proceedings CD Now Available

The CD ROM of Proceedings of the 3rd International Weed Science Congress held in Brazil last summer are now available. It contains all of the abstracts found in the printed version, as well as several full-length papers that were not in the printed version. It is available for $10 USD for individuals from developed countries and will be sent free to scientists from developing countries. Libraries, institutes, and laboratories may request a gratis copy.

Please send your requests with complete mailing addresses to:
Stephen Duke or by email to: sduke@olemiss.edu
P. O. Box 8048
University, MS 38677, USA

IWSS officers

Dr. S. O. Duke, President
USDA, ARS, USA
PO Box 8048, University, MS 38677
Tel: (662)915-1036 Fax: (662)915-1035
E-mail: sduke@olemiss.edu

Dr. Anis Rahman, Vice President
Ruakura, Agric, Res. Centre, Private Bag
Hamilton, NEW ZEALAND
Tel: 64-7-838-5280 Fax: 64-7-838-5073
E-mail: anis.rahman@agresearch.co.nz

Dr. Bernal Valverde, Secretary/Treasurer
The Royal Veterinary & Agricultural University
Thorvaldsensvej 40
DK-1871 Frederiksberg C
Copenhagen, Denmark
Tel: (+45) 35 28 34 62 Fax: (+45) 35 28 34 68
E-mail: bev@kvl.dk

Dr. Ricardo Labrada-Romero, Past-President
FAO, Via Delle Terme di Caracalla
Rome 00100 ITALY
Tel: 396 5705 4079 Fax: 396 5705 6347
E-mail: ricardo.labrada@fao.or

The IWSS Newsletter is published in January and July to foster communication among and give information to our members and others around the globe interested in Weed Science.
Editor: Jerry Doll, Univ. of Wisconsin, 1575 Linden Dr., Madison, WI 53706 USA. FAX: 608-262-5217; email: jddoll@facstaff.wisc.edu.
Deadline for items for the next Newsletter is 15 Dec. 2001.
Thanks to the contributors to the July 2001 issue: Steve Duke, Anis Rahaman, Bernal Valverde, Ricardo Labrada, Jonny Gressel and N.T. Yadurau.

IWSS Newsletter by Internet
Our newsletter is available online on our web site: www.olemiss.edu/orgs/iws/DEFAULT.HTM. You will be able to print it as a pdf file. Please notify Steve Duke (sduke@olemiss.edu) if you are willing to have notification of the next newsletter by e-mail rather than have it sent by regular mail. This will speed up your access to the Newsletter and save the IWSS money.

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Application for Membership -- International Weed Science Society

Membership in the International Weed Science Society (IWSS) is open to individuals of all nations interested in any aspect of weeds and their management. Payment of dues entitles active members to voting privileges and receipt of the IWSS Newsletter and Membership Directory.

Membership fees are:
Individual Membership, US $10.00 annually
Affiliate Membership (for companies, institutions, and national and regional weed science societies) US $50.00
Lifetime Membership, US $200.00.
Payment must be in U.S. currency. ***Credit card payments cannot be accepted.***

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