



## July 2002 Newsletter

### President's Message

**4th IWSSC.** It is now two years before our next congress to be held in Durban, South Africa (June 19-25, 2004). Elsewhere in the newsletter, you will find plans for the scientific program, as well as the excursions associated with the meeting. Baruch Rubin and Charlie Reinhardt are busy organizing a good time (scientific and social) for everyone. So, please take a look at what is being planned and give them feedback or suggestions for the program. Nothing is carved in stone at this point. We want to be sure that this congress meets the needs of all members. Baruch and Charlie will be approaching some of you in the near future for your help in organizing the program. I encourage you to respond positively.

**Industry changes.** The status of weed science is rapidly changing, due to industry consolidation. Thus, I expect that fewer of our members will be employees of large pesticide companies, and financial support from such sources will further shrink. Nevertheless, weed problems will remain, and weed science will continue to provide new solutions to these problems. As the larger pesticide companies consolidate, they become less interested in smaller markets, leaving opportunities for small companies. In the U.S., there is an increased activity in small companies addressing the weed problems that the large companies have abandoned. These smaller companies seem more willing to work with the public sector to discover and develop solutions. Thus, from the ashes of companies that have been

victims of mergers, we may see a new generation of companies with new interests and new approaches. I hope that scientists in these companies become strong supporters of their local weed science societies and IWSS.

**IUPAC meeting.** The 10th IUPAC International Congress on the Chemistry of Plant Protection ([www.syngenta.com/iupac2002](http://www.syngenta.com/iupac2002)) will be held in Basel, Switzerland in August of this year. The weed management part of this meeting looks quite interesting, with a full program on various aspects of chemical weed management, as well as biotechnology aspects.

**Web Page.** Our web site has a new look ([www.olemiss.edu/orgs/iws/DEFAULT.HTM](http://www.olemiss.edu/orgs/iws/DEFAULT.HTM)). Please give it a look and get back to me ([sdule@olemiss.edu](mailto:sdule@olemiss.edu)) with any comments for improvement. Also make sure we have your current contact information. If not, please let it know to our Secretary-Treasurer, Bernal Valverde ([bev@kvl.dk](mailto:bev@kvl.dk)).

**Dues.** Please renew your membership. I know that those of you who do not get the hard copy of the newsletter may have a tendency to forget this. It is very important that you pay your dues (it is only \$10 per year), so that we can keep up with you and we can continue to pay our bills.

Steve Duke, Oxford, Mississippi, USA

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## Weed science courses and workshops

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A two-day workshop on **Allelopathy in Weed Management** occurred in April 2002 in Jabalpur, India with 45 participants from throughout the country. Dr. Inderjit of the Botany Dept. at Delhi Univ., Dr. R.M. Kathiresan, Dept. of Agronomy at Annamalai Univ., and Drs. D. Swain and D.K. Pandey of the National Research Centre for Weed Science presented theoretical and practical aspects of research in allelopathy in weed management. Discussions were thorough with special attention to the methodologies and means of separating competitive and allelopathic effects. The participants arrived at these recommendations: 1) employ proper methods to establish the occurrence of allelopathy, 2) search for allelopathic crops to use in ecofriendly weed management, 3) explore the herbicidal properties of allelochemicals as possible bioherbicides or to discover new herbicides with novel chemistry, 4) investigate the role of allelopathy in agroecosystems, especially the major cropping systems, with reference to yield loss and crop management practices. (Submitted by N.T. Yaduraju)

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## New publications

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**Molecular Biology of Weed Control**, by Jonathan Gressel, Weizmann Institute of Science, Rehovot, Israel. March 2002. Taylor and Francis Inc., New York. 504 pp.

*Molecular Biology of Weed Control* critically assesses the impact of the new tools of molecular biology on the science of weed control as well as the ways in which the science of weed control has helped and influenced molecular biology. This book describes how weed biologists and ecologists are beginning to use these tools and discusses past successes and failures as well as taking a look at the future prospects for weed control.

The book provides an extensive review of the molecular aspects of the evolution of herbicide resistance in weeds and genetically engineered herbicide resistant crops and discusses their shortcomings as well as suggesting improvements to future generations of such crops. Accentuating the utility of molecular biology to contribute to the control of intransigent weed species both in the developing and developed world, Dr. Gressel also looks to the future and describes how molecular biology can be used to diminish the use of chemical herbicides, and enhance crop competitiveness for light, nutrients and water.

**Molecular Biology of Weed Control** was recently reviewed by David Cole for the *Journal Pesticide Outlook* (published by the Royal Soc. of Chemistry; [www.rsc.org/po](http://www.rsc.org/po)). Here is an abbreviated version of his review. A full version will appear in the August issue of *Pesticide Outlook*.

Weeds have an uncertain place in the hierarchy of things, too often sidelined by both science and the policymakers it is supposed to inform. Urban societies now view the countryside as a green amenity space; farmers must therefore make compromises with town dwellers where weed control methods are selected to protect biodiversity and the environment. On the other hand cost-effective weed control still has the potential to provide economic uplift in the developing world. Wherever weeds are a threat, sustainable solutions for weed control are required and policymakers need to encourage the foundations for this. Genomics, for example, is seen as a gateway to a new understanding of biology, yet virtually no scientist has started to apply genomic analysis in order to understand the molecular basis of weedy traits in 'real' problem species.

The clouds on the horizon are not just the inevitable tightening of environmental regulation, but also the failure of the agrochemical industry to come up with much significantly new in the last decade or so. One may speculate on the reasons – an inevitable maturation of technology, higher specifications to meet, disappointing return on the newer discovery tools of combinatorial chemistry and high throughput screening, or industry consolidation and the inevitable loss of inventive diversity.

Fewer herbicides will be available to farmers and biological inspiration is needed to support new weed control approaches. Professor Gressel is one of the few weed scientists willing or able to put his heads on the block by challenging the status quo and his words should be heeded as one of the few stellar figures in the discipline. The strength of this new book lies in providing a generalist's view of how molecular biology can be exploited in weed control. Inspirational, provocative and sometimes pedantic, the maverick author takes us on a wide-ranging tour, analyzing the state of the art, exposing knowledge gaps and proposing radical new approaches to weed control. Pondering the big questions, numerous strands of thought are brought together, generating ideas for any number of research proposals and laying down clear challenges to science.

Gressel opens by redefining the weed threat and the significance of plant molecular science in meeting this. This sets the scene for a skeptical but reasoned

dissection of the technologies being taken up by agrochemical R&D, ranging from high throughput screening through to genomics and in silico design. All technologies have their place but can they deliver? There is little I would disagree with, and an independent observer's voice has tremendous value here. Surprising gaps in our understanding of the genetic relatedness of crops with some of their companion weed species exist. In a handy subsequent chapter, current DNA fingerprinting techniques are evaluated which can help superior management of herbicide resistant weeds and resistance transgenes.

Central chapters focus on core topics in herbicide action; their mode of action, herbicide tolerant crops and herbicide resistant weeds. Here, the author attempts to provide something different from current standard texts. A spotlight is put on knowledge gaps and recommendations on how these might be addressed rather than merely dwelling on what has been done. The tendency to regularly highlight perceived shortcomings in the reported science can be irksome, but by emphasizing long term economic needs, current state of the art is thrown into sharp relief. Key themes are well crystallized here – how molecular biological understanding can help predict the long term utility of herbicide technologies, identifying weed threats to the sustainability of global crops and needs unmet by big business which can technically at least, be addressed.

No punches are pulled in criticizing the introduction of rice tolerant to herbicides in the USA, in the absence of understanding introgression risks to optimize herbicide management in a crop infested with genetically identical or similar weeds. Regulatory authorities should rightly look at sustainability of products beyond the few years needed for marketers to get a payback. A plea is made for developing more sustainable biotechnology-based herbicide tolerances exploiting preferable but often generic chemistries. However, market dynamics are unlikely to bring these forward and enlightened self-interest is not high up on business' agenda.

Weed scientists will be most engaged by later chapters which turn to novel possibilities of weed control, entailing a degree of crystal ball gazing. Arguments are put forward for transgenically neutralizing the aggressiveness of weeds or for engineering the required hyper virulence into pathogens for effective biological weed control. By the author's own admission, some ideas are flights of fancy but in other cases, the molecular ground work is there. Failsafe mechanisms to limit transgene introgression are imaginatively discussed as an integral part of any new technology.

This highly personal and well-referenced essay will be welcomed on the bookshelves of many scientists. Will it be consulted by policymakers? I doubt it and so the calls for greater public and institutional backing for research to help secure long term sustainability of weed control beyond private industry's time horizons are likely going to fall on deaf ears. Unfortunately, weeds are a lot smarter than we give them credit for and convention will not give us the tools to stay on top.

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## Editor's Comments

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Among the things I remember my grad school advisor saying was that he would gladly supervise a student who wanted to develop a better hand or animal drawn tool to control weeds. And I'm sure there are students who have done just that. A tool used for early selective weeding in maize and soybeans in North America is the rotary hoe. This implement was developed by an Illinois farmer in the late 1800s for use with horses.

With today's attention on biotechnology, GPS, computer modeling, etc., you would think innovative research on "old-fashioned methods" might be hard to find. The following articles in the New Developments section show several things. The first is the abstract of a PhD thesis on mechanical weeding. Results were obtained with great science behind them and they clearly help understand the dynamics of the physical and biological aspects of weeding with a harrow. The next item is a compendium of mechanical weeding devices. While less scientific, the grower experiences in this booklet are valuable in knowing how and when to use each tool. Lastly we have a great example of how new technologies can help those who have little if any access to improved weeding methods, especially biotechnology.

**Mechanisms of selective mechanical weed control by harrowing.** Dirk Kurstjens. PhD thesis, Wageningen University, Wageningen, The Netherlands.

**Abstract.** Current weed control problems in organic farming and minor crops show that alternatives for selective herbicides need further development. Mechanical control methods such as weed harrowing are attractive because of the high capacity, wide applicability and low cost. However, the variable effectiveness and limited selectivity at early crop growth stages are major limitations for reliable weed control. In contrast to herbicides, there is little fundamental knowledge of processes and factors that

influence selectivity and effectiveness of mechanical weeding. To provide a more basic understanding, the uprooting, covering and regrowth of three model plant species were studied in detailed laboratory harrowing experiments on sandy soil.

Uprooting appeared to contribute much more to weeding effectiveness than is commonly assumed. Although harrowing predominantly covered plants, covering killed few. In contrast, on average 47-61% of the uprooted plants were killed after six days without irrigation. Drier soil (5% as compared to 16% w/w) increased mortality of uprooted plants from 36 to 91%.

Soil moisture content greatly affected uprooting and covering selectivity. Covering selectivity could be manipulated by working depth and working speed, thus exploiting differences in plant flexibility and height between weeds and crop. Uprooting selectivity could be improved by precise working depth control and by precisely steering the tines along the crop rows. Small-scale spatial patterns and within-population variability of plant sensitivity proved to be very important.

This study indicated several opportunities for improving field experiment methodology and for modeling the efficacy and selectivity of mechanical weeding. A method to predict the relationship between crop and weed uprooting from measured plant anchorage forces was developed. This method could be used to quantify the selective potential of a crop-weed situation and the selective ability of harrowing independent of harrowing intensity.

(Ed. note: three of the chapters in Dirk's thesis have been published. The references are: Soil & Tillage Res. 55: 193-206; Weed Res. 40: 431-447; Weed Res. 41: 211-228; contact Dr. Kurstjens for more information at [dirk.kurstjens@user.aenf.wau.nl](mailto:dirk.kurstjens@user.aenf.wau.nl).)

**Weeding/cultivation Revisited.** One of the most extensive and up-to-date reviews of field cultivation and weeding equipment has been revised with new information in a 2002 version of STEEL IN THE FIELD, first published in 1997. Author G. Bowman

has retained the same informative mix of technical data, outstanding black and white line drawings, and first-hand reports from growers of dryland, orchard/horticultural, and agronomic crops, but updated the numerous addresses and added web sites to make this 128-page work an even more valuable reference. Sustainable Agriculture Publications, Hills Bldg., Rm 210, Univ. of Vermont, Burlington, VT 05405-0082, USA. E-mail: SANpubs@uvm.edu.

## FIELD DEMONSTRATIONS OF *STRIGA* CONTROL ON IR-MAIZE

At the IWSS Congress in Brazil, Tim Reeves, CIMMYT Director General, described *Striga* as one of the main constraints to subsistence agriculture in sub-Saharan Africa, and Jonathan Gressel discussed how control of this parasitic weed is amenable to biotechnological solutions. Fred Kanampiu, CIMMYT agronomist in Kenya, described his early successes in *Striga* control using non-adapted Pioneer IR maize (produced from tissue culture selection) with herbicide seed treatments. The results of 8 years of breeding, application technology development, and field trials with this concept in a Rockefeller Foundation funded CIMMYT-Weizmann Institute of Science joint project will be discussed in Kisumu, Kenya, on July 4-6. Participants from seed companies and government agencies will visit farmers' fields and learn how less than 30 g/ha herbicide dressed to maize seed gives season-long *Striga* control and, on average, has tripled yields on *Striga* infested farmers' fields in Kenya, Zimbabwe, Tanzania and Malawi. The imidazolinone resistance mutant gene has now been incorporated into CIMMYT maize lines and cultivars adapted to African biotic stresses. Working with seed companies, CIMMYT hopes to soon make IR-maize cultivars available to farmers as herbicide-coated seed. *Striga* control by this method precludes the need for spray equipment, allows intercropping of sensitive crops and greatly increases the benefit:cost ratio of fertilizer use.

Fred Kanampiu, Jonathan Gressel and Dennis Friesen

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## International Weed Sci. Congress 2004

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Charlie Reinhardt (Co-chair: Program Committee)

In this article, I intended to keep the interest in IWSC 2004 high, and to give preliminary information until the first congress circular appears. The local organizing committee is gearing up for the big occasion by also being involved with the "17th National Weed Science Congress" of the Southern African Weed Science Society from 18 to 21 June 2002. The venue for the national event is Umhlanga Rocks, a coastal resort just north of Durban, the venue for IWSC 2004

The scientific program of IWSC 2004 will consist of the session subjects that you will be familiar with from similar events. Amongst the more classical session topics there are likely to be those that reflect their particular importance on the African continent, e.g., "Parasitic Weeds," "Weed Management for Subsistence Farming," "Role of Women and Children in Weed Control." A special effort will be made to

attract participants from as many as possible countries on the African continent, and the event is likely to deal with all aspects of weed management that are relevant in both the developed and developing parts of the world.

### Focus on Durban and surrounds

The city of Durban is regarded as the coastal capital of KwaZulu-Natal, one of nine provinces in the Republic of South Africa. "KwaZulu" translates to "home of the Zulu." The rich and dramatic history of the Zulu nation cannot be told here, but it certainly is worthwhile reading up on. First reference to the area known today as Durban was made by the Portuguese seafarer Vasco da Gama in 1497. He and his men were particularly successful by fishing in a bay at the mouth of a lagoon and named the place "Porto da Pescaria," but through a misunderstanding it later became known as "Rio de Natal." Of course the local inhabitants had other names for the place. For them the lagoon was "Thekwini." Today the lagoon forms part of the harbor of Durban, the largest port of South Africa. The city is cosmopolitan and colorful, and swings to the vibe and rhythm of subtropical Africa. Durban is a modern city that focuses its drive to attract visitors on tourists and conference delegates, and the amenities and security it has explain the overwhelming success of the campaign.

The east coast of South Africa is a summer-rainfall area, and the months from October to March are hot and steamy, with an energy-sapping humidity and occasional torrential rains. The winter months (May to August), however, bring relief because the days are warm and the evenings mild and cool. The natural wealth on land and sea on this part of the coast is augmented by man-made crops such as pineapples, sugar cane and bananas. Natural crops such as lala palms and wild bananas flourish amongst indigenous subtropical plants. To the lush greens of summer is added the extensive forestry plantations in the foothills of the majestic Drakensberg range that extends along the north-south axis parallel to the coastline. Forestry species include *Acacia mearnsii*, *Eucalyptus* spp. and *Pinus* spp., all of which may cause problems where they occur as escapees from the plantations. In all of this green lushness there lurks a terrible menace, alien invader plant species that threaten to overwhelm the indigenous types. Some of the most important alien species are *Chromolaena odorata*, *Lantana camara*, *Pereskia aculeata*, *Parthenium hysterophorus*, *Eichhornia crassipes*, *Pistia stratiotes*, and many more.

The pre-congress tour that is envisaged will take in forestry, crops and game reserves. Inland the landscape is mainly open savannah, and at the coast

there is a series of lakes that are linked to estuaries. One of these, Lake St Lucia, is a world-heritage site. A vast variety of animals, birds and plants abound in these areas. Here lions and elephants are plentiful, and sightings of the "Big Five" (elephant, lion, buffalo, leopard and rhinoceros) during a single visit is not uncommon. A familiar scavenger in lakes and rivers is the crocodile, and in the ocean it is the great white shark and its kin.

### Cape Town and surrounds

The post-congress tour will start in the city of Cape Town and radiate outwards from the Cape Peninsula to the surrounding wine estates and nature reserves. Cape Town is referred to as the "mother city" because this is where the first white (meaning of European descent) people settled. The Dutch established the first proper settlement here in 1652, although the Portuguese navigator Bartholomias Dias came past in 1488. The city is snugly tucked in between the Table Mountain massif and the sea, and about 2 km from it lies Robben Island where former President Nelson Mandela was imprisoned. First the practice of slavery and subsequently the abolishment of it contributed to the rich diversity of the locals and the nation as a whole. Cape Town has a unique charm that flows from the spectacular natural beauty of the area and the people that inhabit it. Also unique is the flora and fauna. The Cape Floral Kingdom is one of the precious few in the world, and boasts many extremely rare species. Alien plants, in particular *Acacia* and *Hakea* species originally from Australia wreak havoc in this delicate ecosystem. This is a winter-rainfall area that is suited for the production of wheat, excellent wines and deciduous fruit such as apples, pears, peaches, apricots, etc. A particular problem on wheat fields is the resistance of species such as *Bromus*, *Raphanis*, and *Lolium* toward the ALS-inhibitors.

Close to Cape Town there is an important transitional zone between the west and east coasts. This is where the Atlantic and Indian oceans meet at the most southerly point of the African continent. It is particularly evident in the change in temperature from the western side of the peninsula to the eastern side; while in winter the temperatures are about equal, in summer the temperature difference can be eight to ten degrees Celsius. The nature reserves that are within easy reach of Cape Town are many and varied in terms of their fauna and flora. Unfortunately modern man has long ago displaced lions, elephants and the Bushmen (Koi-people) in the region, but remnants of them are to be seen in somewhat artificial settings. Just as easy to reach are more than sixty wine-producing estates, and their wares are delightfully diverse and heart-warming also.

**Invitation**

We invite you to establish contact with us by way of enquiry or by conveying ideas on the program or any other matter pertaining to the congress. I can be contacted directly at Tel. No. +27 12 420 3220; Fax No. +27 12 420 4120; E-mail: [creinhard@postino.up.ac.za](mailto:creinhard@postino.up.ac.za)

**Scientific Program for 4th International Weed Science Congress**

The scientific program will cover the topics listed below. If you do not see a topic that covers your interests, please email the Scientific Program Co-Chairs, Baruch Rubin ([rubin@agri.huji.ac.il](mailto:rubin@agri.huji.ac.il)) and Charlie Reinhardt ([creinhar@nsnper1.up.ac.za](mailto:creinhar@nsnper1.up.ac.za)) with suggestions for other sessions.

We plan to have four working days (one day may include an afternoon excursion), each with:

- Plenary lecture
- Morning session (Three to four concurrent sessions)
- Poster session
- Lunch break
- Afternoon Session (Three to four concurrent sessions)
- One or more evening Lectures

**Main Subjects:**

- Weed Ecology
- Molecular and Biotechnological Approaches in weed Science
- Integrated Weed Management and IPM
- Integrated Weed Management in Major Crops
- Weed Management in Minor Crops
- Weed Management in Organic Farming
- Weed Management in Turf, Right of Ways, and Public Areas
- Weed Management in Forests
- Aquatic Weed Management
- Biological Control
- Natural Products and Allelopathy
- New Approaches in Herbicide MOA
- Application, Formulations and Adjuvants
- Physical Approaches in Weed Management
- Environmental Fate of Herbicides (soil, water, air)
- Invasive, Exotic Weeds
- Parasitic Weeds, Biology and Management
- Herbicide-Resistant Weeds

- Herbicide-Resistant (Tolerant) Crops
- Precision Agriculture and Weed Science
- Regulatory and Public Health Aspects
- Education and Technology Transfer
- Socio-Economic Aspects
- Graduate Students Presentations
- Professional Excursions

We hope to have a full program, which covers the entire breadth of weed science, giving each participant many interesting presentations and posters visit.

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## Coming Events

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**2002**

**July 29-Aug. 1 XXIII Brazilian Weed Science Congress;** Gramado (near Porto Alegre), State of Rio Grande do Sul, Brazil

Contact: Dr. Erivelton Roman ([eroman@cnpt.embrapa.br](mailto:eroman@cnpt.embrapa.br)) or the Brazilian Weed Science Society (SBCPD) at: ([sbcpd@cnpsa.embrapa.br](mailto:sbcpd@cnpsa.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, Switz.; Fax: 44 61 697 7472  
Web page: [www.syngenta.com/iupac2000](http://www.syngenta.com/iupac2000)

**August 27-29 3rd IOBC Working Group Meeting for the Biological and Integrated Control of Water Hyacinth;** Entebbe, Uganda

Contact: Dr. Martin Hill, Plant Prot. Res. Institute, Private Bag X134, Pretoria 0001, South Africa  
FAX: +27 12-329-3278; email: [rietmh@plant2.agric.za](mailto:rietmh@plant2.agric.za)

**August 26-30 3<sup>rd</sup> World Congress on Allelopathy;** Tsukuba, Japan (Tsukuba International Congress Center)

Contact: Yoshiharu Fujii; Fax: +81-298-38-8338; email: isa@affrc.go.jp

**Sept. 9-13 13<sup>th</sup> Australian Weed Conference;** Perth, Western Australia

Contact: <http://members.iinet.net.au/~weeds>; Fax: +6-8-89450-2942; email: [convlink@iinet.net.au](mailto:convlink@iinet.net.au)

**Sept. 8-13 11<sup>th</sup> International Symposium on aquatic Weeds;** Moliets, France

Contact: M-H. Montel, Water Quality Res. Unit, Cemagref Groupement de Bordeaux; Fax: +33-5-578-90801; email: [Marie-Helene.Montel@cemagref.fr](mailto:Marie-Helene.Montel@cemagref.fr); Web: <http://www.cemagref.fr/>

**2003**

**Feb. 9-12 Weed Science Society of America annual meeting;** Jacksonville, Florida USA

Contact: Joyce Lancaster, Exec. Sec. WSSA, P.O. Box 7050 Lawrence, KS 66044 USA  
Email: [jlancaster@allenpress.com](mailto:jlancaster@allenpress.com) tel.: 785 843-1235, extn. 250 FAX: 785-843-1274

**March 18-22 19<sup>th</sup> Asian Pacific Weed Science Society Conference,** Manilla, Philippines

Contact: Mr. Lorenzo Fabro, National Crop Protection Center, Univ. Philippines, Los Banos, College, Laguna, Philippines FAX: 6349-536-2409  
emails: [lfabro@yahoo.com](mailto:lfabro@yahoo.com); or: [amb@mudspring.uplb.edu.ph](mailto:amb@mudspring.uplb.edu.ph)

**April 27- May 2 11<sup>th</sup> Symposium on Biological Control of Weeds,** Canberra, Australia

Contact: Sharon Corey; tel: (02) 6246 4136; Fax: (02) 62464177;  
Web: <http://www.ento.csiro.au/weeds2003/index.html>

**July 6-11 15<sup>th</sup> International Plant Protection Congress,** Beijing, China

Contact: Wen Liping, IPPC Secretariat, Insti. Plant Protection, Chinese Academy Agric. Sci., #2 West Yuanmingyuan Rd., Beijing 100094, China. FAX: 86 10 62895451; email: [cspp@ipmchina.cn.net](mailto:cspp@ipmchina.cn.net);  
web: <http://www.ipmchina.cn.net/ippc>

**2004**

**Feb. 7-11 Weed Science Society of America annual meeting;** Kansas City, Missouri USA

Contact: Joyce Lancaster, Exec. Sec. WSSA, P.O. Box 7050 Lawrence, KS 66044 USA  
Email: [jlancaster@allenpress.com](mailto:jlancaster@allenpress.com) tel: 785 843-1235, extn. 250 FAX: 785-843-1274

**June 19-25 International Weed Science Congress;** Durban, South Africa

Contact: Scientific Program Co-chairs, Baruch Rubin ([rubin@agri.huji.ac.il](mailto:rubin@agri.huji.ac.il)) or Charlie Reinhardt ([creinhar@nsnper1.up.ac.za](mailto:creinhar@nsnper1.up.ac.za))

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.

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Thanks to these contributors to the July 2002 issue: Steve Duke, N.T. Yaduraju, Charlie Reinhardt, Baruch Ruben, Fred Kanampiu, Jonathan Gressel, Dennis Friesen, Dirk Kurstjens and David Cole.

**Deadline for items for the next Newsletter is 15 December 2002.**

**IWSS Newsletter is available by Internet:** [www.olemiss.edu/orgs/iws/DEFAULT.HTM](http://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](mailto: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.

## 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.***

Your name \_\_\_\_\_  
 Company/Organization \_\_\_\_\_  
 Address \_\_\_\_\_  
 \_\_\_\_\_  
 City \_\_\_\_\_  
 State/Zip/Country \_\_\_\_\_  
 Phone \_\_\_\_\_ Fax \_\_\_\_\_ Email \_\_\_\_\_

Amount enclosed \$ \_\_\_\_\_

Type of Membership:      Individual              Affiliate              Lifetime

Mail your check payable to the International Weed Science Society and mail to one of three people:

**1. In North America:**

Stephen O. Duke  
 USDA, ARS, NPURU  
 P.O. Box 8048  
 University, MS 38677 USA

**2. In the rest of the World:**

Bernal E. Valverde  
 The Royal Veterinary & Agricultural University  
 Weed Science  
 Agrovej 10, DK-2630 Taastrup, Denmark

**3. To your national correspondent or regional representative** in local currency. We have such representatives for South America, Central America and the Caribbean, the Middle East and North Africa, West and Central Africa, East and Southern Africa, West Europe, East Europe, India and South and SE Asia, and Central and North Asia.

Their names and addresses are found on the IWSS Web site: [www.olemiss.edu/orgs/iws/DEFAULT.HTM](http://www.olemiss.edu/orgs/iws/DEFAULT.HTM)