



# APWSS Newsletter 2002 (1)

## REPORTS FROM MEMBER COUNTRIES

### REPORT FROM AUSTRALIA

#### Publication Update

#### Australian publications

During the course of my work, I have been asked by colleagues from overseas to recommend one or two important books on Australian weeds and their management. Described below are two books, which fall into this category. Both books are listed in the July 2001 Catalogue put out by the publisher R.G. and F.J. Richardson, specialists in plant publications. Email [richardson@weedinfo.com.au](mailto:richardson@weedinfo.com.au) or see Website [www.weedinfo.com.au](http://www.weedinfo.com.au) for more information on these books and how to order them.

#### “The Biology of Australian Weeds”

Volume 1 – edited by R.H. Groves, R.C.H. Shepherd and R.G. Richardson

Detailed reviews on sixteen of Australia’s worst weeds: *Alternanthera philoxeroides*, *Bromus diandrus* and *B. rigidus*, *Carduus nutans* ssp. *nutans*, *Carthamus lanatus*, *Chondrilla juncea*, *Echium plantaginium*, *Eichhornia crassipes*, *Eremophila mitchellii*, *Hydrilla verticillata*, *Hypericum perforatum*, *Mimosa pigra*, *Nassella trichotoma*, *Reseda lutea*, *Salvinia molesta*, *Typha domingensis* and *T. orientalis*, *Xanthium occidentale* and *X. spinosum*.

Volume 2 – edited by F.D. Panetta, R.H. Groves and R.C.H. Shepherd

Seventeen chapters on more of Australia’s worst weeds. Detailed reviews on: *Acacia nilotica* ssp. *indica*, *Cabomba caroliniana*, *Cassinia arcuata*, *Chrysanthemoides monilifera*, *Cryptostegia grandiflora*, *Cytisus scoparius* ssp. *scoparius*, *Emex australis*, *Hypochoeris radicata*, *Lantana camara*, *Oxalis pes-caprae*, *Parthenium hysterophorus*, *Phragmites australis*, *Raphanus raphanistrum*, *Rubus fruticosus*, *Senecio madagascariensis*, *Ulex europaeus*, *Vulpia bromoides* and *V. myuros*.

#### “Australian Weed Management Systems”

Edited by Brian M. Sindel

This book presents weed management systems from an Australian perspective. It discusses the threat that weeds pose and their impact on the Australian economy. It examines the tactics and capabilities that allow weeds to be as successful as they are. All available methods for their control and management are examined in detail including physical, chemical and biological systems. Weed management strategies are devised for cropping systems, pastures, vegetables, orchards, and vineyards, lawns and turf, plantation forests, rangelands and aquatic systems. It concludes with a discussion of the challenges being faced and future directions for weed management.

By Aik Cheam

Department of Agriculture Western Australia

### REPORT FROM JAPAN

#### The Japan Herbicide Resistance Working Group and The Asia-Pacific Herbicide Resistance Working Group

The Japan Herbicide Resistance Working Group (JHRWG) has been organized and initial discussions about the herbicide resistant weed problems have taken place. The group is composed of individual members, universities, research institutes, agricultural research stations and the private sector. At present, a mailing list (in Japanese) of 73 individual members has been compiled.

One of the objectives of the JHRWG mailing list is to gather information about herbicide-resistant weeds in Japan and Korea. For example, a survey of areas infested with sulfonylurea herbicide-resistant weeds, in Japan and Korea was made (Table 1).

**Table 1. Infested Areas of Sulfonylurea Resistant paddy weeds in 2001**

(Unit: ha)

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	Japan	Korea
<i>Lindernia spp.</i>	200000	10
<i>Elatine triandra</i>	50000	0
<i>Rotala indica</i>	10	0
<i>Monochoria spp.</i>	7600	2020
<i>Scirpus spp.</i>	29500	0
Data source	Itoh 2001	Park et al. 2001

**The Asia-Pacific Herbicide Resistance Working Group (APHRWG)** on the other hand, has not been organized yet. However, we hope to start a new mailing list using English as the official language, by the end of this year. The APHRWG mailing list will be used to collect information about herbicide resistant weeds in the Asia-Pacific Region.

Please join us! We look forward to your subscription and active participation. For inquiries, please contact Dr. Kazuyuki Itoh at [kitoh@affrc.go.jp](mailto:kitoh@affrc.go.jp).

Dr. Kazuyuki Itoh

National Institute for Agro-Environmental Sciences, Japan

### **International Symposium of Weed Science Society of Japan**

Weed Science Society of Japan celebrated our 40th anniversary this year, and the International Symposium was held on September 17-18, 2001 in Tsukuba/Japan. Professor Yasutomo Takeuchi headed this symposium, and it was supported by not only our society but also the Tsukuba EXPO '85 Memorial Foundation, Japan Association for Advancement of Phyto-regulators (JAPR), Japan International Research Center for Agriculture Science, Kanto Weed Science Society, Monsanto Japan (Limited) and Nihon Bayer Agrochem. As a tragic accident occurred in USA just before this symposium, two invited speakers could not come to Japan. However, finally 12 invited speakers gave lectures in oral sessions, 20 posters were presented, and 127 participants attended this symposium, not only from Japan but also from abroad.

The main theme of this symposium was "Challenges Today to Weed Management in 21st Century", and consisted of 4 sessions. In Session 1 "Modern technology of chemical weed control", Dr. T. Manabe emphasized the importance of genetically modified herbicide resistant crops by combining none-tillage cultivation in order to prevent soil erosion. Dr. M. Kremer introduced "Ultra High Throughput Screening" in combination with combinatory chemistry, which enables to screen 0.1 to 0.2 million compounds per day. In the Session 2 "Status and Future aspects of Biological weed control", Dr. B. A. Auld mentioned the needs of formulation development for mycoherbicides because of the unstable efficacy and the limited weed spectrum. Dr. S. Zungontiporn introduced utilization of allelopathy plants in Thailand, such as sesame against cogon grass and Legume cover crops. In Session 3 "Challenges in noxious weed management", Dr. P. Michael mentioned about the competitive ability of alfalfa and phalaris against thistles. Dr. L. Xue introduced "Jumbo" formulation for the paddy herbicides in partnership with JAPR, and pointed out some problems of chemical weed control, such as herbicide resistant weeds and carry over to the succeeding crops. In Session 4 "Significance of weeds", Dr. D. V. Chin introduced utilization of Vetiver grass, *Vetiveria zizanioides*, for prevention of soil erosion and drought. Dr. I. S. Shim stressed the importance of phyto-remediation against soil salinity, and mentioned some grasses that are effective for this purpose.

In the poster presentations a wide range of themes was introduced, such as mode of action of Protox inhibitors, genetic analysis of naturalized weeds and their heat stress, natural substances in allelopathy plants, weed emergence in none-tillage cultivation, screening of woody plants for phyto-remediation, and so forth. The symposium was closed by sharing the importance of weed science for the future, targeting not only agriculture but also loss of biodiversity, global warming, forest destruction, desertification, etc. If you need more detailed information, please contact Dr Yasuhiro Yogo.

Dr. Yasuhiro Yogo

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### **REPORT FROM KOREA**

#### **Fall meeting of Korean Society of Weed Science**

Fall meeting of Korean Society of Weed Science was held at Honam Agricultural Experiment Station, Iksan, Chunbuk Province, on October 25 -26, 2001. In the plenary session, Dr. M. Miyahara, Japan (Rice weed control status in Japan), Dr. Y. Takeuchi, Utsunomiya University, Japan (Present status and prospect of turf weed management in Japan), and Dr. Duong Van Chin, Cuulong Delta Rice Research Institute, Vietnam (Weed management in rice in Vietnam) presented papers, and three Ph. D. dissertations were reported by Dr. Do Soon Kim, LGCI Ltd (Modeling herbicide and nitrogen effects on crop-weed competition for decision support in weed management; Bristol Univ., UK), Dr. Man Ho Kim, Kyungnong Corporation (Diffusibility and herbicidal activity of bubbling tablet herbicide formulations for paddy rice; Chungnam National University), and Dr.

Sung Hwan Choi, Kyungnong Corporation (Physiology and ecology of sea club rush; Gyungsang National University). General papers were presented in the weed biology and ecology session and the herbicide session. The annual meeting of KSWS will be held in Suanbo Hotel, Chungbuk Province in early May, 2002.

Dr. Jong Yeong Pyon

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Chungnam National Univeristy, Yosong Taejon, Korea

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## **REPORT FROM NEW ZEALAND**

### **54<sup>th</sup> New Zealand Plant Protection Conference**

The 54<sup>th</sup> Conference of the New Zealand Plant Protection Society was held from 14 to 16 August 2001 at the Quality Hotel in Palmerston North. Some 50 oral papers and 20 posters were presented on weed, pest and disease problems of arable, vegetable and horticultural crops as well as pastures. Environmental weeds and pests also received their fair share. A special session along with a one hour panel discussion was held on ecological impacts of the genetically modified organisms (GMOs). At the Annual General Meeting, Drs Stephen Goldson (AgResearch), Alison Stewart (Lincoln University) and Anis Rahman (AgResearch) were elected as President, Vice President and Treasurer, respectively.

Then 55<sup>th</sup> Annual Conference will be held at the Centra Hotel in the tourist city of Rotorua from August 13 – 15 2002. For further information contact Dr A Rahman, Fax. +64 7 8385073, Email: [anis.rahman@agresearch.co.nz](mailto:anis.rahman@agresearch.co.nz).

### **NZ Plant Protection Society Biosecurity Symposium**

This one-day symposium will be held at the Centra Hotel, Rotorua on 12 August 2002, the day before the 55<sup>th</sup> Annual Conference starts at the same venue. It will showcase the value of research to biosecurity in New Zealand. It will also connect scientific research to the biosecurity operational requirements of various government departments. Invited government officials will also outline their perspectives on biosecurity research needs. For further information contract Dr Stephen Goldson: Fax: +64 3 983 3904 Email: [Stephen.goldson@agresearch.co.nz](mailto:Stephen.goldson@agresearch.co.nz).

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Agresearch, Ruakura Research Centre, Private Bag 3123, Hamilton, New Zealand

Fax: +54 7 838 5073 Email: [anis.rahman@agresearch.co.nz](mailto:anis.rahman@agresearch.co.nz)

## **REPORT FROM THAILAND**

### **Panel Discussion on Wet-Sown Rice in Thailand**

A panel discussion on Nawannumtom (Wet-seeded) rice in Thailand was held on the occasion of celebrations for the 72<sup>nd</sup> anniversary of Mr. Prachorn Kanchanomai, which was organized by the Weed Science Society of Thailand. Mr. Prachorn was one of the founders of the Weed Science Society of Thailand and had introduced Nawannumtom to the Thai farmers. The main objective of this meeting was to discuss the developments in these techniques in the past and the adoption of this rice growing technology. The speakers included the representative of Thai farmers, Mr. Pracha Lapanun, the former head of districts, where the cooperation of nawannumtom development was practiced and Dr. Prasan Vongsaroj as a weed scientist and Dr. Prakorn Soojare as a moderator. Thai farmers have gained benefits through introducing this method, since the rice growing period could be shortened, resulting less production costs and higher profits.

### **The Workshop on Kneeing the Rice Straw**

A Workshop was held on kneeing the Rice Straw after being harvested for New Tillering. There were lectures on the principle of this new technique that has been fully developed by the farmers. Dr. Ladawan Kunnuj (Rice Research Institute, Department of Agriculture) and Mr. Chareon Tuamkum (Office of Agricultural Research and Development, Region 5) talked about the advantages and disadvantages of this new technology. Dr. Prasan Vongsaroj presented a talk on the contribution of this technique for minimizing the weed problem, and Mr. Somchai Kongmuang, as a representative of the farmers, was also a speaker. At the opening of this workshop, the Minister of Agriculture and Cooperatives, Mr. Choocheep Harnsawat, officially addressed the participants. He is also interested in this rice growing technique because of the savings in rice seeds and labour, higher profits, and suppression of weed populations.

### **IRRC Weed Ecology Working Group**

Weed scientists from 8 countries namely Bangladesh (Dr. Gazi Jashim Uddin Ahmed), China (Prof. Dr. Yu Liuqing) India (Prof. Y. Singh), Indonesia (Dr. Hamdan Pane), Malaysia (Dr. Azmi Bin Man), Sri Lanka (Mrs. A.S.K. Abeysekera), Thailand (Dr. Prasan Vongsaroj) and IRRI representatives Drs. B.P. Caton, A.M. Mortimer and J.E. Hill, attended the IRRC Weed Ecology Working Group on 14 January 2002 at Rama Gardens Hotel, Bangkok, Thailand. The objective of the workshop was to formulate a proposal on research and training in the next five years for the region. The four projects agreed among the weed scientists are:

1. Biology and management of weedy rice.
2. Sustainable use of herbicides (training for a trainer).
3. Weed management and crop establishment in various systems.
4. Rice cultivar suppression of weeds in different culture systems.

#### Weed Science Society of Thailand Activity

Assistant Professor Adisak Buankiyapan of Kasetsart University gave a lecture on the topic of Weeds and Human's Life at the Kasetsart University Alumni Building on 14 December 2001. There were 150 participants attending this special lecture. On this occasion, the members of the Weed Science Society of Thailand celebrated the 72<sup>nd</sup> anniversary of Mrs. Saowanee Thammasara, a former weed scientist of the Royal Department of Irrigation and the early retirement of Mr. Charuck Boonsrirat, a former weed scientist at the Rubber Research Institute, Department of Agriculture. Mrs. Saowanee Thammasara sacrificed herself for research on aquatic weeds and she has published many papers concerning aquatic weeds, especially *Mimosa pigra*. Mr. Charuck Boonsrirat used to work in weed research in rubber and oil palm and has attended many of the former Asian-Pacific Weed Science conferences, including Bangalore, India, Jakarta, Indonesia, Kuala Lumpur, Malaysia and Manila, Philippines. He has published many papers on weed management in rubber plantations.

On the same day, the representative President of the Weed Foundation, Dr. Hiran Hiranpradit chaired the ceremony of the donation of funds to support printing of theses for Masters degree level concerned with weed science from three universities, namely Chiang Mai, Prince of Songkla and Kasetsart University.

Dr. Prasan Vongsaroj

Botany and Weed Science Division, Department of Agriculture, Thailand

#### REPORT FROM VIETNAM

##### The Invasion of *Mimosa pigra* L. in Vietnam

The giant mimosa (*Mimosa pigra* L.) has posed a new threat to the wetland environment from the North to the South of Vietnam. It is a perennial woody shrub native to tropical America and widely naturalized in tropical regions of Africa, Southeast Asia and Australia. Five-ridged stems are branched, 2 to 4 m long with dense growth. Spines and bristles arise from the stems. Leaves are about 20 cm long and pinnate compounds. Petioles and leaves are spiny and hispid. Dormant reaction of leaves by physical stimulation is not strongly sensitive. Many globose inflorescences arise from the end of the stem and from the axil of leaf. Pale reddish purple stamens are conspicuous in the florets. Pods are compressed, 5 to 10 cm long, about 2 cm wide and densely hispid. Seeds display a strong dormancy and their viability is long. Seeds continue to germinate after 23 years. However, a small proportion of bare seeds without hispid cover can germinate soon after being removed from the plants. Young seedlings are weak and less competitive with other weeds and they are susceptible to shading. Plants prefer wet and sunny areas and form large communities along the banks of rivers, canals and wasteland. This dangerous weed has invaded many wetland areas. The typical infestation in the Mekong river delta of Vietnam is at the National Wetland Park of Tram Chim in Dong Thap province. This park is located in the latitude 10 0 36' / - 10 0 46' North and in the longitude 105 0 28' / - 105 0 36' East with the total area of 7,616 ha. Now *Mimosa pigra* has occupied 490 ha and continues to expand. In a primary survey, results showed that there are about 130 plant species, 198 bird species and 55 fish species currently in the park. Especially, some endangered birds such as *Grus antigone sharpii* are still living in the area. The fast infestation of giant mimosa can affect the weed community there particularly those which are used as natural feed for birds. Birds also hate the dense community of *Mimosa pigra* with spiny branches and they migrate to new areas. The long-term strategic research and development program for checking the invasion of *Mimosa pigra* in the country is urgently needed.

Dr. Duong Van Chin

Dept. of Weed Science and Farming System, Cuulong Delta Rice Research Institute, Vietnam

Fax: 8471-862457, Email : duongvanchin@hcm.vnn.vn

#### GENERAL INFORMATION

##### Integrated Pest Management Network

If you're involved with or interested in Integrated Pest Management, you might like to subscribe to IPMnet – a free, non-commercial source of current IPM and pest management global information.

You're also welcome to access IPMnet's website with its extensive links to useful IPM information, such as the *Database of IPM Resources* and *Radcliffe's IPM World Textbook*, as well as an expertise database and other services.

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4. Request IPMnet’s World Wide Web free access information.

.... By sending an e-mail message indicating any of items #1-4, to [IPMnet@bcc.orst.edu](mailto:IPMnet@bcc.orst.edu), with your preferred email address.

## New book

Molecular Biology of Weed Control

By: Jonathan Gressel

## Weizmann Institute of Science, Rehovot, Israel

March 2002 520pp Hb: 0-415-26642-4 £ 75.00

Special pre-publication price £ 60.00 through 29 March 2002

*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.

Providing an extensive review of the molecular aspects of the evolution of herbicide resistance in weeds and genetically engineered herbicide resistant crops, *Molecular Biology of Weed Control* discusses their shortcomings as well as suggesting improvements to future generations of such crops. Accenuating the utility of molecular biology to contribute to the control of intransigent weed species both in the developing and developed world, the book 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.

Taking a multi-disciplinary, open-minded approach to the problems, pitfalls and potential benefits of these new technologies and their applications, *Molecular Biology of Weed Control* is essential reading for all environmental students, researchers and regulators, as well as anyone else with an interest in the future of weed scientists, agricultural production etc.

## Table of Contents

1. Introduction
2. Molecular Tools for Herbicide Discovery
3. Molecular Tools for Studying Weed Biology, Ecology and Taxonomy
4. Evolution of Resistance to Herbicides
5. Molecular Biochemistry of Resistances that have Evolved in the Field
6. Generation of Biotechnologically-Derived Herbicide-Resistant Crops (BD-HRC)
7. The next Generation of BD-HRC
8. Transgene Introgression from Crops to Weeds and its Modulation
9. Modifying Crops and Weeds to Directly Control Weeds
10. Molecular biology in Weed Biocontrol

For information on this book, or ordering, contact Antonio Upali, Taylor & Francis Ltd., 11 New Fetter Lane, London, EC4P 4EE, UK.  
Tel: +44(0)20 7842 2021, Fax: +44 (0)20 7842 2300; Email: [Antonio.upali@tandf.co.uk](mailto:Antonio.upali@tandf.co.uk)

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## CALENDAR OF EVENTS

### 2002

- February 10-13      Weed Science Society of America Annual Meeting  
Reno Hilton Hotel  
Reno, Nevada, USA  
Contact: Contact Rhonda Green  
E-mail: [wssa@allenpress.com](mailto:wssa@allenpress.com)  
Web page: <http://www.wssa.net/index.html>
- February 13-14      Invasive Plant Species Workshop  
Reno Hilton Hotel  
Reno, Nevada, USA  
Contact: Contact Rhonda Green  
E-mail: [wssa@allenpress.com](mailto:wssa@allenpress.com)  
Web page: <http://www.wssa.net/index.html>
- 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  
Tel. +39 050 883 449 Fax: 39 050 883 215  
Email: [barberi@sssups.it](mailto:barberi@sssups.it)  
Web site: [www.ewrs.org/physical-control](http://www.ewrs.org/physical-control)
- June 24-27      12th International Symposium of European Weed Research Society  
Papendal National Sports Center  
Arnhem (near Wageningen), The Netherlands  
Contact: EWRS Symposium 2002  
Fax: +31-317319652  
E-mail: [Ingrid.sanders@wxs.nl](mailto:Ingrid.sanders@wxs.nl)  
Web page: [http://www.ewrs.org/w2002/register\\_set.html](http://www.ewrs.org/w2002/register_set.html)
- August 4-9      10th IUPAC International Congress on the Chemistry of Crop Protection  
(Formerly: International Congress of Pesticide Chemistry)  
Convention Center Basle

Basle, Switzerland

Contact: Ms. C. Andersson, c/o Syngenta CP AG

Fax: +41 61 323 74 72

E-mail: [claudia.andersson@syngenta.com](mailto:claudia.andersson@syngenta.com)

Web page: <http://www.syngenta.com/iupac2002/>

August 13-15

55<sup>th</sup> New Zealand Plant Protection Conference

Centra Hotel, Rotorua

Contact: Dr A Rahman, Fax: +64 7 838 5073

E-mail: [anis.rahman@agresearch.co.nz](mailto:anis.rahman@agresearch.co.nz)

Webpage: <http://www.hortnet.co.nz/nzpps>

August 26-30

3rd World Congress on Allelopathy

Tsukuba International Congress Center (Epochal Tsukuba)

Tsukuba, Japan

Contact: Yoshiharu Fujii

Fax: +81-298-38-8338

E-mail: [ias@affrc.go.jp](mailto:ias@affrc.go.jp)

September 02-06

11th International Symposium on Aquatic Weeds

Moliets, France

Contact: M-H. Montel, Water Quality Research Unit, Cemagref Groupement de Bordeaux

Fax: +33-5-578-90801

E-mail: [Marie-Helene.Montel@cemagref.fr](mailto:Marie-Helene.Montel@cemagref.fr)

Web: <http://www.cemagref.fr/>

September 8-13

13th Australian Weeds Conference with Symposium on herbicide resistant crops and weeds

The Sheraton Perth Hotel

Perth, Australia

Contact: Aik Cheam or Sally Peltzer, Stephen Powles (Symposium)

E-mail: [acheam@agric.wa.gov.au](mailto:acheam@agric.wa.gov.au) or [speltzer@agric.wa.gov.au](mailto:speltzer@agric.wa.gov.au), [spowles@agric.uwa.edu.au](mailto:spowles@agric.uwa.edu.au)

Fax: +61-8-9450 2942, +61-8-9380-7834

Web page: <http://members.iinet.net.au/~weeds>

## 2003

February 2003                      Weed Science Society of America Annual Meeting

Jacksonville, Florida

Contact: Weed Science Society of America

February 17-21, 2003            6th International Workshop on Biological Control and Management of *Chromolaena odorata* and Biological Control of Weeds in Indonesia

Medan and Samosir Island, North Sumatra, Indonesia

Contact: R. Muniappan

E-mail: [RMuni@uog9.uog.edu](mailto:RMuni@uog9.uog.edu)

April 27 - May 02                11th Symposium on Biological Control of Weeds

Canberra, Australia

Contact: Sharon Corey

Fax: +61-02-6246-4177

E-mail: [sharon.corey@ento.csiro.au](mailto:sharon.corey@ento.csiro.au)

Details: <http://www.ento.csiro.au/weeds2003/index.html>

## 2004

June 19-25                        4th International Weed Science Congress

The International Convention Centre

Durban, South Africa

E-mail: [sduke@olemiss.edu](mailto:sduke@olemiss.edu)

Web page: <http://www.olemiss.edu/orgs/iws/DEFAULT.HTM>

### RELATED WEB SITES

Weed Science Society and so forth	
European Weed Research Society	<a href="http://www.res.bbsrc.ac.uk/ewrs/">http://www.res.bbsrc.ac.uk/ewrs/</a>
International Weed Science Society	<a href="http://www.css.orst.edu/weeds/iwss">http://www.css.orst.edu/weeds/iwss</a>
Weed Science Society of America	<a href="http://ext.agn.uiuc.edu/wssa/">http://ext.agn.uiuc.edu/wssa/</a>
Weed Science Society of Japan	<a href="http://wssj.ac.affrc.go.jp/">http://wssj.ac.affrc.go.jp/</a>
Useful sites	
Herbicide Resistance Action Committee	<a href="http://www.plantprotection.org/HRAC/">http://www.plantprotection.org/HRAC/</a>
Weed Sci. Group in Western Australia	<a href="http://www.agric.wa.gov.au/progserv/plants/weeds">http://www.agric.wa.gov.au/progserv/plants/weeds</a>
Weed Science Pages Index	<a href="http://www.nrcan.gc.ca/~bcampbel/weedindx.html">http://www.nrcan.gc.ca/~bcampbel/weedindx.html</a>
World Weed Database	<a href="http://wwd_1@plant-sciences.oxford.uk">wwd_1@plant-sciences.oxford.uk</a>



If you know other web sites related to weed science, please inform the Newsletter Editor.

**Deadline for material for the next Newsletter is**

**15 APRIL 2002**

**Send newsletter material to:**

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**This newsletter has been compiled/edited by Dr.. Yasuhiro Yogo in Japan and formatted/produced at AgResearch, Hamilton, New Zealand.**