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Message from the APWSS President, Professor Steve Adkins

Dear APWSS membership,

It gives me great pleasure to inform you that we have now have our Newsletter back in circulation after a break for two years. Before you get into reading it, I need to thank our departing Society Executive Officer, General Secretary Professor Nimal Chandrasena, for his leadership and the hard work he has put into our Society over many years. I would also like to congratulate the incoming Vice President Dr Denny Kurniadie from Indonesia, General Secretary, Dr Do Soon Kim from Korea and Newsletter Editor and Web Master Dr Asad Shabbir from Pakistan, and thank them for agreeing to serve the APWSS in these new roles for at least the next two years. Professors Marwat and Renton remain our Past President and Treasurer, respectively. Ten months ago in September 2011 we gathered at the Sebel Hotel in Cairns, at the 23rd APWSS Conference, a successful event organised by a dedicated team from Australia and a full report follows later in this Newsletter. We are now preparing to meet once again in Bandung, Indonesia October 22-24, 2013 at the Padjadjaran University Convention Center, with Dr Denny Kurnradie Chairing the Organising Committee and again a full report follows later in this Newsletter. Can I also remind



you we now have a web site (www.apwss.org) onto which most of our important information is being placed including our Newsletter. We hope to put out this new look Newsletter every six months but to do this our Newsletter Editor will need to receive items from you. I look forward to seeing you in Bandung or perhaps at the 4th Tropical Weed Science Conference in Chiang Mai, Thailand in 2013.

A Report on the 23rd Asian Pacific Weed Science Society Conference, Cairns, Australia 2011

Weed scientists and practitioners from all over the Asia-Pacific region and from many other parts of the world met in The Sebel Hotel Cairns, Australia from September 26 to 29th, 2011 to attend the 23rd Asian Pacific Weed Science Conference. The Asian-Pacific Weed Science Society was founded in 1967 and since then has held its biennial meetings in different parts of the Asian-Pacific region. These meetings provide a venue for the exchange of research and educational ideas and for undertaking activities associated with the Society. The Cairns Conference provided a great opportunity for participants to broaden their view on the management of agricultural, aquatic and invasive environmental weeds. The delegates shared experiences on the biology, ecology and management of weeds across the Asia Pacific region

Conference Activities

Two hundred and ten (210) participants from 26 countries attended the Conference. A total of 140 papers were presented including 90 oral presentations and 60 poster papers. There were 18 Technical Sessions and the oral presentations were made in up to four parallel sessions

APWSS website: Information about APWSS and all previous issues of newsletter are now available at the following website;
<http://apwss.org>

The Proceedings of the Conference were published in two volumes on the APWSS web site (www.apwss.org). Editors were R. McFadyen, N. Chandrasena, S. Adkins, A. Hashem, S. Walker, D. Lemerle, L. Weston, and S. Lloyd. In addition, the Proceedings will also be published within the Pakistan Journal of Weed Science Research, Volume 18 (Special Edition), 2012. All the registered Conference participants will be provided with a link to the Proceedings when published in this format.

Plenary papers were given by the following people:

Dr Hishashi Kato-Noguchi spoke on the topic of rice allelopathy and the role of momelactone.

Dr Rensen Zeng spoke on the multiple functions of allelochemicals in ecosystems

Dr Anis Rahman, gave a presentation about the past and future of weed management in the Asian-Pacific region.

Dr Jo Di Tomaso spoke on the invasive plant threats and the present prevention approaches used in the Asia-Pacific region and the USA

Dr Alan McHughen spoke on impact of herbicide tolerant crops on weed management in the Asian-Pacific region

Dr NT Yaduraju spoke on the weed management perspectives in the changing agriculture scenarios in India

Dr Kil-Ung Kim gave a presentation about the utilization of weeds as biological resources and as management tools

Dr Jeff Mullahey spoke on the biology, ecology and control of tropical soda apple.



Some glimpses of 23rd Asian Pacific Weed Science Society Conference, held at Cairns, Australia.

The 23rd APWSS Conference was opened at the Sebel Hotel, Cairns, Australia on 26th September 2010. The opening session was Chaired by Dr Nimal Chandrasena, General Secretary of the APWSS and Professor Stephen Adkins, President of APWSS, delivered the Welcome Address

Day 1 Monday, 26 September 2011

Following the Plenary Session there were three concurrent sessions namely, Stream 1 Threats and Risks - Invasive Weeds and Climate Change, Stream 2 Weed Solutions - Aquatic Weeds and Utilization of Weeds and Stream 3: Challenges for Weed Management: Herbicide Resistance.

The Conference hosted a Welcome reception at the Daintree's Pool Deck, Sebel Hotel at 6.00 and this was followed by the APWSS Executive Committee Meeting which was held in Tully 3, at 7.00pm with all available country representatives present.

Day 2 Tuesday, 27 September 2011

Following the Plenary session there were four concurrent sessions namely, Stream 1 Threats and Risks - Biosecurity, Stream 2 Sustainable Weed Management- Chemical Control, Stream 3: Challenges for Weed Management - Bioherbicides and Allelopathy, and Stream 4: Integrated Weed Management.

The General Meeting of the APWSS was held in the main ballroom at 5.30 pm. At the meeting members were elected to be office bearers for APWSS 2011-2013. Professor Stephen Adkins, APWSS President chaired the meeting. The following (at the time of the conference) now comprise the elected office bearers of the APWSS until 2013; President Professor Steve Adkins, Australia; Vice-President A/Professor Denny Kurniadie, Indonesia; Secretary Dr Nimal Chandrasena, Australia; Treasurer Dr Michael Renton, Australia; Newsletter Editor Dr Nimal Chandrasena, Australia (no voting position); Web Master: Dr Asad Shabbir, Pakistan, (non-voting position); and Past President Professor KB Marwat, Pakistan.

Day 3 Wednesday, 28 September 2011 - Field Excursions

The third day of the conference was devoted to interactive field excursions focusing on weed issues in three different ecosystems in northern Queensland.

Field Trip 1: Weedy Tropics Managing Weeds within Rainforests, Grazing and Water systems.

Field Trip 2: Eating up the Tropics - Managing Tropical Agricultural Weeds

Field Trip 3: Whirlwind Tour - The Dynamics of Cyclones and Weeds, with a Snappy End

Day 4 Thursday, 29 September 2011

Following the Plenary session there were three concurrent sessions namely, Stream 1: Weed Impacts, Stream 2: Biocontrol and Ecological Control and Stream 3: Integrated management methods.

Closing Session

After four days of successful deliberations, the 23rd APWSS was officially closed by the APWSS President Professor Steve Adkins who thanked the organizers for conducting a successful conference. At the closing ceremony several awards were made;

Excel Crop Care Young and Deserving Scientists:

Awards to five Young and Deserving Scientists were made by Excel Crop Care Ltd., India. The awards corresponded to a full registration fee and Selection was made on the basis that the candidate was presenting an oral, was under the age of 45, and had made a significant contribution to weed science in the APWSS region, either in research or in administration. The awards went to:

Dr Irfan Rashid,
Assistant Professor
Department of Botany,
Government College Baramulla,
Jammu and Kashmir, India

Dr Ilias Hossain,
Senior Research Scientist
Bangladesh Agricultural Research Institute
Regional Wheat Research Centre, Rajshahi,
Bangladesh

Dr Bharat Babu Shrestha
Assistant Professor
Central Department of Botany
Tribhuvan University, Kirtipur,
Kathmandu, Nepal

D. P. Saravanane
Assistant Professor,
Dept. of Agronomy
P. J. Nehru College of Agriculture
Serumavilangai, Nedungadu, Karaikal,
Pondicherry, India

International Weed Science Society Student Fellowships: These awards were provided by the International Weed Science Society and were made to three young scientists who were presenting an oral paper, and were enrolled as a full time higher degree student and who had made a contribution to weed science in the APWSS region. The awards went to:

Mr Zahid Hanif
Institute of Biotechnology and Genetic Engineering,
Agricultural University
Peshawar, KPK, Pakistan

Mr Apaitia Macanawai
Koronivia Research Station
Ministry of Primary Industry
Nausori, Fiji

Ms Thi Lan Thi Nguyen
University of Natural Sciences
Ho Chi Minh National University
Ho Chi Minh City, Vietnam

The Asian-Pacific Weed Science Society Best Paper Awards: These awards were provided by the Asian Pacific Weed Science Society and were made to three presenters who were judged to have given the best paper in three categories. The awards went to:

Best Poster

Mr Simon Brooks
Tropical Weeds Research Centre
27-43 Natal Downs Road, Charters Towers, Qld

Best Student Paper

Ms Amalia Belgeri
School of Agriculture and Food Science
The University of Queensland,
St Lucia, Brisbane, Australia

Best Paper

Michael Widderick
Department of Agriculture, Fisheries and Forestry,
Toowoomba, Australia.

A Brief Summary of the APWSS Executive Meeting

The meeting of APWSS Executive Committee took place on the evening of Monday, 26th September 2011 at the Sebel Hotel, Cairns. The President, Secretary and Treasurer all presented reports on the various matters relating to the Society's past and present

activities. This was followed by a brief country report from each of the member countries present. A discussion then took place concerning the hosting of the Conference in 2013 and 2015.

1. President's Report

At the outset of the meeting the Society President, Dr Steve Adkins welcomed everyone to the meeting and explained the agenda. He also announced the following: (a) the launching of the APWSS Website (www.apwss.com); (b) the 2011 APWSS Founders Award to Dr Anis Rahman; (c) the Excel Crop Care Awards to three Young and Deserving Scientists; (d) the International Weed Science Society Fellowships to three postgraduate students and (e) the Conference Program details. He also explained that the Conference income was not as great as anticipated due to lower than expected numbers of people attending the Conference.

2. Secretary's Report

The Society Secretary, Dr Nimal Chandrasena pointed out that there had been very few APWSS activities to report on during the past year. He drew attention to the Newsletters that had been published in 2008 and 2009, which highlighted activities from many different countries. The Newsletter has not been produced in 2010 or 2011, because of the lack of a Newsletter Editor.

3. Financial Summary

The Society Treasurer, Dr Michael Renton presented the APWSS Treasurer's Report, as summarized below:

Account Type	Australian \$
On-line Savings Account	27,715.31
Cheque Account	554.12
Loan 23 rd APWSS	6000.00
Totals	34,269.43

4. Hosting of the 2013 and 2015 Conferences

Bids were received from Bangladesh and Indonesia for the hosting of the 2013 Conference, and from India for the 2015 Conference. Interest was also received from the Philippines to host either the 2015 or the 2013 Conference, however at the time of the Ex-Co meeting no paperwork had been received to support these bids from the Philippines and therefore these bids could not be considered further.

At the meeting, Bangladesh (Professor Hazrat Ali) withdrew their bid, which left only the Indonesian bid for the 2013 Conference. Dr Adkins then explained that although no Indonesian delegates were present at the current Conference, a bid document had been received

from the Indonesian Weed Science Society with a recommendation to hold the next Conference at Bandung in 2013. Dr Adkins then presented the bid on behalf of Indonesia.

The Ex-Co considered the views of all members and agreed to provisionally accept the Indonesian bid, and for the President to communicate with IWSS to confirm that they are ready to accept the responsibility of hosting the next conference. An interesting request within the Indonesian bid was that the jobs of APWSS President and Secretary should not come along with the job of hosting of the Conference. The APWSS President will communicate the Ex-Co decision (later ratified at the General Meeting) and to communicate with the Chairman of the Indonesian Weed Science Society (Denny Kurniadie) and confirm their willingness to host the next conference.

The bid from India to host the 25th APWSS Conference in 2015 was enthusiastically presented and was accepted by the Ex-Co. The Indian delegation was represented by N.T. Yaduraju and Abhijit Bose, who tabled a signed letter expressing the interest of many leading Indian scientists in hosting the Conference in 2015.

5. Society Reform

Drs Adkins and Chandrasena suggested that from their experiences of the past few years, there is a need for the APWSS to undergo some organizational changes in order to fulfill the Societies Constitution. They presented a strong case for the 'uncoupling' of the APWSS Secretariat from the Organization Committee of the Conference, largely to allow the Secretariat to undertake activities that will contribute to the development of the Society, whilst allowing the host country to focus on organizing the next Conference.

After some debate, it was decided that the Ex-Co will recommend to the General Meeting that the APWSS Secretariat be 'uncoupled' from the host country that is selected to hold the next APWSS Conference. This would require a change to the APWSS Constitution, which could be ratified at the next Conference in Indonesia. If this motion was carried at the General Meeting, then the key APWSS office-bearers would remain in office for the next two years. These are the offices of President, General Secretary, Treasurer and Immediate Past President. In addition, the Chairperson of the Weed Society hosting the next APWSS Conference would become the Vice President of the APWSS Ex-Co.

6. Close

The meeting was officially closed in the afternoon of 26th September 2011 with a vote thanks to the

organizing committee and to Chairperson and the President of APWSS, Dr Steve Adkins for his invaluable efforts and contributions to making the present event a success.

A Brief Summary of the APWSS General Meeting

The APWSS General Meeting took place on the evening of Tuesday, 27th September 2011 at 5.30 to 6.30 in the main Ballroom in the Sebel Hotel, Cairns. The President, Secretary and Treasurer all presented reports on the various matters relating to the Society's past and present activities. A discussion then took place concerning the items raised in the Ex-Co Meeting including the hosting of the Conferences in 2013 and 2015.

1. Welcome and Presidents Report

At the outset of the meeting the Society President, Dr Steve Adkins welcomed the more than 80 members (representing Australia; Bangladesh; China; Fiji; India; Japan; Korea; Papua New Guinea; Pakistan; Malaysia; New Zealand; Thailand; Turkey; Vietnam; Sri Lanka; USA) to the meeting and then explained the agenda. He announced the outcomes of the Ex-Co meeting including the following: (a) the launching of the APWSS Website (www.apwss.com); (b) the 2011 APWSS Founders Award to Dr Anis Rahman; (c) the Excel Crop Care Awards to three Young and Deserving Scientists; (d) the International Weed Science Society Fellowships to three postgraduate students and (e) the Conference Program details. The President then opened a discussion on the publishing of the APWSS Newsletter. He pointed out that a recommendation had been made by the past Newsletter Editor Dr Chandrasena, that a new position should be created for a Society Webmaster/Assistant Editor. After a call for nominations, Dr Asad Shabbir was elected unopposed into this new position.

2. Secretary's Report

The Society Secretary, Dr Nimal Chandrasena pointed out that there had been very few APWSS activities to report on during the past year. He drew attention to the Newsletters that had been published in 2008 and 2009, which highlighted activities from many different countries. The Newsletter has not been produced in 2010, because of the lack of a Newsletter Editor. He requested that from now on all APWSS Country Representatives attending the General Meeting should make brief presentations on the activities of their

Country Weed Science Societies and other weed science-related activities. This would be in addition to them reporting activities through the Newsletter. The long-term sustenance of a Society, such as APWSS, depends on such communications, and the sharing of information.

3. APWSS Financial Summary

The Society Treasurer, Dr Michael Renton presented the APWSS Treasurer's Report, as previously shown

4. Hosting of the 2013 and 2015 Conferences

The President explained that bids had received from Bangladesh and Indonesia for the hosting of the 2013 Conference, and from India for the 2015 Conference. Interest was also received from the Philippines to host either the 2015 or the 2013 Conference, however at the time of the Ex-Co meeting no paperwork had been received to support these bids from the Philippines and therefore these bids could not be considered any further.

It was explained that at the Ex-Co meeting, Bangladesh had withdrawn their bid, which left only the Indonesian bid for the 2013 Conference. Dr Adkins then explained that although no Indonesian delegates were present at the current Conference, a bid document had been received from the Indonesian Weed Science Society with a recommendation to hold the next Conference at Bandung in 2013. Dr Adkins then presented the bid on behalf of Indonesia to the General Meeting.

The bid from India to host the 25th APWSS Conference in 2015 was enthusiastically presented and was accepted by the Ex-Co. The Indian delegation was represented by N.T. Yaduraju and Abhijit Bose, who tabled a signed letter expressing the interest of many leading Indian scientists in hosting the Conference in 2015.

Action: *That the APWSS President ask for, and gain full support from the General Membership for hosting the Conference in Indonesia in 2013 and in India in 2015.*

5. Society Reform

The President then opened a discussion on whether the APWSS Secretariat should be 'uncoupled' from the activities relating to hosting of the conference. This was largely to allow the Secretariat to undertake activities that will contribute to the development of the Society, whilst allowing the host country to focus on organizing the next Conference. Following remarks from the past President Professor Marwat and longstanding senior Member Dr Rahman, this proposal was unanimously accepted by the membership.

Action: *That the APWSS President and General Secretary should draft the required changes to the APWSS Constitution, for review by the Ex-Co, and then the membership countries for feedback, and subsequently, for presentation at the General Meeting in Indonesia.*

6. Weed Biology & Management Journal

Dr Toshihito Yoshioka, Editor-in-Chief of the WBM Journal, promoted that the journal be considered the official journal of the ASWSS, and encouraged the membership to renew their annual membership of the Japanese Weed Science Society (JWSS).

7. Close

The meeting was officially closed in the evening of 27th September 2011 with a vote thanks to the organizing committee and to Chairperson and the President of APWSS, Dr Steve Adkins for his invaluable efforts and contributions to making the present event a success.

The Role of the APWSS Executive

PRESIDENT

The President is the Chief Executive Officer and representative of the Society and is responsible for its successful operation and management. These responsibilities should include:

- 1) Communication with members of the Executive Committee, regional, corporate and affiliated Society representatives with respect to the operation and activities of the Society.
- 2) Monitoring of the Constitution, the Statutes and Rules of the Society, and the duties of the officers and representatives of the Society, and updating these as necessary in collaboration with the Executive Committee.
- 3) Providing guidance to the Executive Committee and representatives with respect to the development of new initiatives to extend the influence and impact of the Society.
- 4) Promotion of the Society to all interested parties, including other Societies and groups with interests in the Society.
- 5) Representation of the Society at appropriate forums.
- 6) Determining the agenda for the Annual General Meetings, and acting as Chair at such meetings.

- 7) Submission of an Annual Report on the activities of the Society.
- 8) Chair the Meeting committee and be the liaison between local organizers (and Scientific Program Committee, and Editorial Committee) of the biennial International Meetings and the Executive.

VICE PRESIDENT

The Vice President will:

- 1) Assist the President with respect to the above responsibilities, and deputize to represent the President when necessary.
- 2) Receive proposals by interested parties to hold the biennial international meetings will be received by the president-elect.
- 3) Advance to the office of President when that office is vacated.

SECRETARY

The Secretary will:

- 1) Maintain a current list of members, and communicate with the Membership on the operations of the Society and the activities of the Executive Committee.
- 2) Communicate to the Membership the agenda of the AGM.
- 3) Take the minutes of the AGM and communicate these to the Membership.
- 4) At the appropriate times, solicit nominations for vacant positions on the Executive Committee and convey these to the Membership. Arrange, distribute and count ballots when required.
- 5) Chair the Communications and Publications Committee when necessary.
- 6) Update information and advertising materials produced by the Society.
- 7) Maintain a list of the Executive Committee members and Regional, Corporate representatives and representatives from Affiliate Societies, with respect to their appointment and termination dates.

TREASURER

The Treasurer will:

- 1) Be responsible for the finances of the Society and for preparing a biannual report on these for the Executive and for the AGM.

- 2) Advise the Executive on any changes necessary in the operation of the finances to the benefit of the Society.
- 3) Chair the Membership Committee.
- 4) Make payments from Society funds as are authorized by the Executive Committee.

REGIONAL REPRESENTATIVES

The Country Representatives will be appointed by the President or their country affiliated society, in consultation with the Executive Committee, and must be Society Members in all of the affiliated countries. Country Representatives will be re-appointed and may serve a maximum of three 2 year terms. These representatives will:

- 1) Promote the Society in their country to all interested parties, and actively recruit members into the Society.
- 2) Promote regional meetings of the Society that bring Members together to present their research, particularly as a forum for students and research fellows.
- 3) Communicate information about the Society and its activities to Members in their region, and encourage them to attend Society Meetings.
- 4) Communicate activities in their region to the Editor of the Newsletter so that these may be included in the Society Newsletter.
- 5) Provide feedback to the Executive Committee of actions that will encourage and facilitate the participation of local members in the Society.
- 6) Representatives will participate as ex-officio members of one of the sub-committees of the Society.

NEWSLETTER EDITOR

The Newsletter Editor will be appointed by the Executive Committee, and will serve for a period of 2 years, renewable normally for up to two further terms, subject to mutual agreement,

- 1) The Editor will be responsible for the contents and production of the biannual Newsletter and will distribute that newsletter to all members of the Society via the Society email and postal list (and place on the web site).
- 2) All Newsletters will be archived on the Society web site.

- 3) The Newsletter Editor is a member of the Executive Committee and member of the communications and publications sub-committee.
- 4) The Editor will also maintain and update the Society web site

ISWS Gold Medal Award' to Dr. A.N. Rao



Dr. A.N. Rao has been awarded the prestigious “ISWS Gold Medal Award: 2010-2011” by the Indian Society of Weed Science (ISWS), for his outstanding contributions in the field of Weed Science to both

Indian and International farming community. The award was given on 19th April 2012 during an inauguration function of the Biennial Conference of the Indian Society of Weed Science on “Weed Threat to Agriculture, Biodiversity and Environment” held during 19-20 April 2012 at Thrissur, Kerala.



Dr. Rao has 34 years of research experience in developing and disseminating integrated weed management technologies for attaining optimal and sustainable crop productivity. Dr. Rao worked at ICRISAT, University of Hyderabad, Andhra Pradesh Agricultural University (ANGRAU), A.P. State Council for Science and Technology, and as an Agronomist (Weed Scientist) at the International Rice Research Institute (IRRI) in the Philippines and Egypt. Dr.A.N. Rao has more than 100 journal papers and popular articles on weed management, published and presented at National and International conferences. Dr. Rao has visited Syria, USA, Thailand, Philippines, Vietnam, Australia and Egypt. He is a Life Member of the Indian Society of Weed Science; a member of the

International Weed Science Society and APWSS. Dr. Rao received the CIBA /GEIGY best logo award for designing Asian Pacific Weed Science Society Logo and also an ISWS Fellows award.

Dr A.N. Rao is currently serving as the President, Society for Participatory Development and Research, Hyderabad. Dr. Rao is member of the Indian CCA Exam Committee; Agriculture committee, FAPCCI; and Editorial Board, Indian Journal of Weed Science. Dr. A.N. Rao is consultant (Weed management) to several organisations such as NIPHM, DRR and IRRI/India.

Dr A.M. Baltazar Receives IWSS Outstanding International Achievement Award

Dr. Aurora M. Baltazar, member and past President (2003) of the APWSS, was one of four recipients of the International Weed Science Society (IWSS) Outstanding International Achievement Award for 2012. The award was given by the IWSS and presented to Dr. Baltazar and her co-awardees during the awarding ceremonies of the 6th International Weed Science Congress held in Hangzhou, China in June 17-21, 2012.

Dr Baltazar was recognized for her outstanding achievements and contributions to research, teaching, and extension in herbicide and weed physiology and ecology. Among her notable achievements are her research work on purple nutsedge ecotypes and their adaptation mechanisms in lowland rice ecosystems and the management of difficult tropical weeds in rice-vegetable cropping systems through basic and strategic research. This contributed not only to improvements in farmer productivity in rain-fed rice-vegetable multi-crop systems but also to the generation of often limited scientific data on the nature of tropical crop-weed ecosystems. She has helped institute weed science courses and taught generations of students from weed biology to herbicide physiology and biotechnology and contributing further to the development of weed science as a distinct discipline in the Philippines and in Southeast Asia. She also has been a leading member of the Philippine and Southeast Asian Weed Science communities and has served in various capacities and held key positions in national, regional and international weed science societies.

The award was presented by Dr. Baruch Rubin, IWSS President and Chair of IWSS Organizing Committee,

Dr. Albert S. Fischer, IWSS President-Elect and Dr. Nilda Burgos, IWSS Vice-President. The 5-day congress was attended by about 600 delegates from 51 countries from all over the world.

Dr Baltazar received the IWSS Outstanding International Achievement Award from Dr. Mark Spinney, head weed control biology, Syngenta (left) and from Dr. Baruch Rubin, IWSS President (right).



Country Report – Vietnam: Collaboration between the International Rice Research Institute (IRRI) and Cuulong Delta Rice Research Institute (CLRRI) on weedy rice research.

CLRRI (investigator: Dr D.V. Chin) and IRRI (investigator: Dr B.S. Chauhan) have initiated a three-year project in Vietnam entitled: Weedy rice management in lowland rice in South and South East Asia (2011-2013).

The primary results of the first year of research are described below:

A survey on fields infested and seed contaminated by weedy rice: A survey was conducted in 2011 in three

villages (Vien An, Co To and Thoi Long). Thirty farmers in each village were interviewed and their rice seeds were collected for analysis. Vien an village of Tran De district locates in South coast, Co to of Tri Ton district locates in little high land near the mountainous region and Thoi Long of O Mon district is in alluvial soil near the bank of Mekong River. Majority of farmers (96%) in those three villages recognize the weedy rice appearance in their fields. According to them, the specific characteristics of weedy rice as compared to cultivated rice are: taller plants, long and weak leaf blades, early flowering, easily shattering and variation in husk colours. In terms of the effect on yield, they (82%) said that weedy rice infestation caused a yield loss of approximately 14%.

Regarding the source of rice seeds for production, 24% farmers buy the certified seeds from the government or private companies, 45% keeps their own commodity as seeds and 31 % exchanges their products to get the seeds from neighbors. Farmers know the weedy rice seed contamination in their ready to use seeds. The percentage of corresponding farmers is 77%.

Weedy rice seeds contaminated in rice seeds are high in all villages. The data in Co To, Vien An and Thoi long are 304 seeds of weedy rice per kilogram of cultivated rice, ; 237 seeds of weedy rice per kilogram of cultivated rice and 168 seeds of weedy rice per kilogram of cultivated rice, respectively .

The effect of crop rotation on weedy rice infestation. Along the bank of the Mekong River in alluvial soil, a proportion of farmers grow upland crops in spring – summer season in rotation with two crops of rice instead of growing three crops of rice. In upland crop fields, weed and weedy rice plants are killed by cultural means or by selective herbicides used for upland crops. This prevent the weedy rice to propagate the seeds for the contribution to the soil seed bank. In this research, some upland crops were grown in spring – summer season and rice in Summer-Autumn season. Results revealed that the dry weights of weedy rice in rice fields in Summer-Autumn season collected at 90 days after sowing reduced 43% under plots grown by maize in the previous season as compared with that of the previous crop of rice. In case of sesame, mung bean, soybean, the corresponding data in succeeding crop of rice are 52%; 57% and 58%.

Chemical weedy rice control. An experiment was conducted in Summer-Autumn season of 2011. It is well known that pretilaclor controls common rice weeds very well but the objective of this experiment is to find out whether this chemical can control weedy rice

or not . Weedy rice infestation in the previous season was very high. Land was prepared thoroughly by rotary cultivation, puddling and leveling. Weedy rice seeds were soaked for 24 hours before sowing randomly in the layout plots by hand at the rate of 100 kg /ha. Seeds were buried beneath under mud by drawing a banana trunk in the soil surface. After one day, pre-germinated seeds of cultivated rice were seeded in line by using a drum seeder at the rate of 120 kg/ha.

One day after line sowing, pretilachlor was sprayed based on the treatments namely: (i) Untreated check; (ii) pretilachlor at 300 g a.i. /ha [pre.@300]; (ii) pretilachlor at 600 g a.i. /ha [pre.@600]; (ii) pretilachlor at 900 g a.i. /ha [pre.@900];

Results revealed that the herbicide application reduced weedy rice infestation significantly as compared with that of untreated check. At harvest, the number of weedy rice panicles in the check was 125 panicles/m². The percentages of reduction in the treatments [pre@300]; [pre@600]; and [pre@900] were 50%; 55% and 53% respectively. The corresponding data of weedy rice fresh weights were 68.0%; 66.7% and 61.2%. Weedy rice fresh weights in untreated check was 1,290 grams / m².

Generally, it was observed that there is no need to increase the dose of pretilachlor to increase weedy rice control. The most important thing is careful land preparation to bury all weedy and volunteer rice seeds as deep as possible to increase their control efficiency.

From: Duong Van Chin, representative of the Weed Science Society of Vietnam (duongchin@hotmail.com)

Country Report – New Zealand: PestWebNZ: A New Information Resource

A first for the New Zealand Plant Protection society is to host a general interest, free access information package for New Zealand farmers. We all know that weeds and insect pests severely limit, crop, pasture and livestock production but information on their control is often fragmented and difficult to access.

PestWebNZ www.nzpps.pestweb.co.nz is a new online information package which will allow farmers and people involved in the agricultural sector to find information on the identification and management of insect pests and weeds. It has been developed by a

team of scientists, farm consultants and farmers. A number of NZPPS members have collated the information on individual weeds and pests for PestWebNZ over the past couple of years. The project has involved close collaboration with a farm consultant, a polytechnic student and a number of colleagues within the industry. John Kean, who maintains the NZPPS website, is further developing and maintaining PestWebNZ.

PestWebNZ currently covers over 30 key New Zealand weeds and pests such as giant buttercup, yellow bristle grass, nodding thistle, clover root weevil and Argentine stem weevil. These species have been chosen in consultation with key farming, industry and research personnel, and the website will continue to be expanded with other important species.

PestWebNZ provides an independent source of information to assist both farmers and consultants in making pest management decisions, leading to better control and reduced productivity losses. It increases the rate of knowledge dissemination and makes solutions more readily available to industry. The site is intended to be a supplementary, easily accessible source of information for farmers to use alongside other existing sources. It provides information on identification, control, biology and impact of key New Zealand weeds and pests.

An alert function, available by free subscription, sends emails about outbreaks or potential outbreaks of insect pests, along with suggestions for their management.

One of the USA's worst weeds, Velvetleaf (*Abutilon theophrasti*), found in New Zealand maize crops

Velvet leaf is the worst broadleaf weed in maize and soya bean in USA and is also a problem weed in Europe, Asia, Australia and Africa. Originally from Asia, it is used for its jute-like fibre, and as a herbal remedy, the seed eaten in China and Kashmir. It was introduced to North America in the 18th century from China and has now become one of the foremost broadleaf weeds there. If uncontrolled, it reduces yields by up to 34% and costs the industry hundreds of millions of dollars in control and damage.

The first record of it in New Zealand was when MAF imported it as a species for evaluation as a fibre

producer, but since then it has been accidentally imported with soya bean seed and as a contaminant of other grains. Currently, there are three confirmed infestations; in the northern part of the North Island.

Velvet leaf has large, velvety soft leaves which are clammy to touch and have a musky odour. The buttery coloured flowers only open for a few hours during the hottest part of the day. It has distinctive seed pods containing about 40 large, hard black seeds.

It is a summer growing annual plant which has the ability to germinate throughout the warmer months. Growing to 3 m tall, its biological and ecological characteristics make it particularly competitive and persistent in cultivated fields. Herbicide control is difficult and once established, it is almost impossible to avoid seed production. The economic threshold in maize is between 0.3 and 1.7 plants per m².

Velvetleaf infestation in a maize crop



Country Report – Indonesia: The Next (24th) ASIAN PACIFIC WEED SCIENCE SOCIETY CONFERENCE

The Role of Weed Science in Supporting Food Security by 2020, Bandung, October 22-24, 2013

(The following article has been produced by the Organizing Committee of the 24th APWSS Conference and edited for the Newsletter by Dr Adkins).

Future hunger and food shortages by 2020 have long been predicted. Similar food shortages have happened in various parts of the world in the past, including Ireland (1840), China (1780-1790), India (1940) and Greenland (1987). Even at the present time there are

about 800 million people who are suffering from hunger, or poor nutrition and include people of African countries, some Asian and a few Latin American countries. A UN millennium development goal program plans to reduce food shortage by 50% by 2015.

In general, the availability and affordability of food in the past 30 years (1975-2005) has been far better than in the previous 30 years (1940-1975). This has come about because of an increase in food production as a result of the adoption of new production technologies. The role of weed science in supporting these new productive technologies to achieve world food security is extremely important.

The present production of various food commodities (including rice, maize, soybean, wheat, potato, sweet potato) can be decreased by as much as 70% when weeds are not managed properly. In the tropical countries, including Indonesia, losses due to weeds are much greater than those due to insect pests or diseases. Weeds are commonly present in the field all season long, inflicting constant crop losses, while insect pests and diseases may only attack at one particular time.

Considerable research has been carried out to improve weed management, however reduction of losses due to weeds have only been small. With this opportunity in mind, all members of APWSS, academics, other researchers, agrochemical experts as well as field practitioners are invited to attend the 24th APWSS Conference to share their experiences and present papers or posters under the theme - *the role of weed science in supporting food security by 2020*. The experiences from many countries will be useful in formulating a new way for viewing these present day production problems and also help in the development solutions.

CONFERENCE OBJECTIVES:

1. To deliver an exciting scientific, program involving invited speakers, platform and poster presentations, under the theme - *the role of weed science in supporting food security by 2020*.
2. To exchange information in a wide range of agricultural research activities related to weed science.
3. To connect researchers with industry and policy makers

AIMS:

1. To develop scientific knowledge and applications, in the field of weed science and other scientific disciplines related to weed management practice.
2. To develop the APWS Society, particularly as an organisation to help develop agriculture in Asian-Pacific region.

3. To identify the contribution of weed science in the improvement of agricultural production in the Asian-Pacific region.

PARTICIPANTS:

1. Practitioners in agricultural sectors including plantations, food crops, horticulture crops, as well as the pasture, forestry and national parks industries.
2. Producers of agricultural production tools and machinery and fertilizers.
3. Researchers and students from universities and research institutes.
4. Agrochemical companies, and Government institutes regulating the availability of pesticides.
5. Government departments and institutes related to crop protection

KEYNOTE SPEAKERS:

There will be five keynote speakers including scientists from Germany and the Republic of Indonesia, and a number of invited speakers.

LOCATION AND TIME OF THE CONFERENCE:

The venue will be the Graha Sanusi Hardjadinata, (Padjadjaran University Convention Center), Jln Dipati Ukur No 35. Bandung, Indonesia.

The date has been set as **October 22 to 24, 2013.**

PROGRAM:

The program will consist of:

1. Oral presentations
2. Poster presentations
3. A selection of field trips to various problem weed areas

CONFERENCE SUB THEMES:

1. Sustainable weed management in the Asian-Pacific region:

- Weed biology and ecology
- Biological control
- Physical control
- Chemical control
- Weed control in organic farming
- Weed control in transplanted and direct seeded rice
- Competitive crop development

2. Weed solutions for the Asian-Pacific region:

- Weed management in various ecosystems
- Conservation tillage and zero tillage practice
- Development of herbicides and their applications

- Prevention and management of herbicide resistant weeds
- Molecular biology and biotechnology in weed science
- Utilization of weeds as bio-resources and as a management tool
- Regulatory and national policy issues
- Community Empowerment for integrated control of weeds
- Education, training and extension in weed science
- Management of aquatic weeds

3. Threats` and risks in the Asian-Pacific region:

- Important new weeds in the region
- Weed spread
- Emergence of new weed problems
- Risk analysis/assessment
- Impact of weed control on the environmental
- Invasive species, prevention, process, strategic control

4. Economics of weed control in the Asian-Pacific region:

- Chemical management costs
- Weed management and GM crops
- Economic in weed management

REGISTRATION FEE:

The early indications of the registration fees are:

Early bird	: US \$ 200
Regular fee	: US \$ 300
Students	: US \$ 50

Country Report – Australia: A report on the International Parthenium Weed Workshop, September 27, 2011, Cairns Australia.

INTRODUCTION

An International Parthenium Weed Workshop was held at the Sebel Hotel Cairns, Australia on the evening of the 27th September 2011 during the 23rd Asian Pacific Weed Science Society (APWSS) Conference held from 25-30th September 2011. The Workshop theme was 'Towards Better International Collaboration' (Figure

17). The workshop was part of the activities of the International Parthenium Weed Network (IPaWN) and included brief country reports from most countries in the Asian-Pacific region that have parthenium weed and discussed a number of emerging parthenium weed issues. The Workshop also aimed to develop opportunities for international research collaboration. More than 50 delegates from 15 countries participated in the Workshop. There were a total of nine country reports presented on matters to do with parthenium weed and its management in the different regions of the world.

INTERNATIONAL COLLABORATION

Dr Steve Adkins, Chair, IPaWN, started off proceedings with a brief presentation summarizing what we know about the present distribution of parthenium weed around the globe highlighting the modes and speed of its spread, the kinds of habitats that are becoming infested, the impacts it is having upon crop and pasture production, and upon human and animal health. The presentation outlined the creation of IPaWN in 2009 and international coordination activities that have taken place in the past two years. The presentation concluded with a summary of the research collaborations that are presently underway around the globe and an open invitation to others to join into the future activities.

THE NETWORK

Mr Asad Shabbir, Network Coordinator of IPaWN gave a presentation on the objectives, past activities and future plans of IPaWN. He reported that since its initiation in 2009, IPaWN has been a rapidly expanding network facilitating the exchange of information about parthenium weed and its management. The network was also working towards linking all regional working groups, institutions and other stakeholders with an interest in parthenium weed and its management into a common discussion group. To date there are about 200 members from more than 30 countries. He also reported that IPaWN produces a 6-monthly International Newsletter and other useful publications which are posted online to all network members.

COUNTRY REPORTS

China: Dr Yupeng Geng, Associate Professor in Plant Ecology at the Yunnan University, China gave a brief overview of the parthenium weed problem in China. He outlined the ongoing research work on the molecular ecology of different populations of parthenium weed in China and around the globe. Dr Geng also discussed his collaboration with Australian scientists working at

CSIRO and invited other people to join in this collaborative effort.

India: Dr R. M. Kaithresan, Professor and Head of the Department of Agronomy, Annamalai University, India gave a brief country report on the parthenium weed problem in the Indian subcontinent. He pointed out that further spread of the weed in the India may be reduced, through a national awareness and eradication campaign. He also discussed the increasing human and animal health problems that are occurring in India and a need for a coordinated effort to tackle this problem.

The workshop theme displayed at the venue.



Tanzania: Mr Henry Sweddy, in his country report pointed out that parthenium weed was a recent introduction to Tanzania, and unfortunately in a very short time was already threatening the countries natural communities and the wildlife within. He warned that weed has become a threat to the Serengeti ecosystem which is home to a wide range of iconic African plants and animals. Mr Sweddy pointed out that parthenium weed is already threatening human health in the town of Arusha and its soundings, and joint efforts are now needed to create awareness about the health issues related to this weed. People in Tanzania are using this weed as 'filler' within floral bouquets which is now an important mode for its spread to new areas and this should be discouraged.

Sri Lanka: Dr Buddhi Marambi, Professor of Weed Science within the Faculty of Agriculture, at the University of Peradeniya, Sri Lanka gave a detailed report on the location of the parthenium weed infestations in his country and their effects upon the agriculture, forestry and horticulture of the country, as well as its effects upon human and animal health. He showed in his presentation various sign boards inscribed

in the local language describing the problems of parthenium weed.

Bangladesh: Dr Israil Hossain, Principal Scientist at the Bangladesh Agricultural Research Institute spoke about the recent introduction of parthenium weed, presumably from India and its present day threat to agricultural crop production, with special reference to rice. Dr Hossain supported the view that international collaborative efforts are needed to manage parthenium weed and Bangladesh was keen to play a part in this.

Participants at the International Parthenium Weed Workshop.



Pakistan: Dr Gul Hassan, Professor of Weed Science at KPK Agricultural University, Peshawar, gave a detailed report on the presence of parthenium weed in Pakistan with special reference to the North West region of the country. Dr Hassan described an international linkage project he co-chaired looking at parthenium weed management. This project involving three institutes, KPK Agricultural University, Peshawar, University of the Punjab, Lahore and the University of Queensland Brisbane, Australia. Dr Hassan pointed out the benefits of undertaking cross Institutional and cross-country collaboration on the weed.

Nepal: Dr Sangita Shrestha, from Nepal Academy of Sciences gave a country report on parthenium weed problem in Nepal. Dr Shrestha highlighted the various issues related to parthenium weed in Nepal. She highlighted the human health problems and devastating effect of the weed on native plant communities especially medicinal plants of Nepal. Dr Shrestha finally mentioned joint proposals on parthenium weed management involving Nepalese research institutes with the University of Queensland, Australia.

Papua New Guinea: Ms. Anastasia Kawi a research scientist from Papua New Guinea (PNG) narrated a success story of parthenium weed eradication from PNG. The first incursion of parthenium weed was recorded in Lae, Morobe Province of Papua New Guinea (PNG) in 2001. An eradication programme for parthenium weed was initiated and funded by the South Pacific Commission (SPC)'s Plant Protection Service and implemented by NAQIA and the National Agricultural Research Institute personnel based in Lae City. The parthenium weed eradication programme lasted for 5 years with the regular spraying of paraquat and glyphosate at the affected sites. A recent quarantine survey in November 2009 indicated that no parthenium weed was sighted at the same sites or elsewhere in Lae City and it is officially declared as the weed is eradicated from PNG.

Japan: Dr Tohru Tominaga, from the graduate school of agriculture, Kyoto University, Japan gave brief report on parthenium weed in Japan. In Japan, the invasion of parthenium weed is restricted to the Okinawa Islands, located in the most southern parts of Japan, 26 to 27N, 127 30 to 128 30E. It is distributed mainly in road sides and waste lands, but there are no reports on the population size and its rate of spread. It is annual and/or biennial, flowers in summer to autumn and causes pollen allergy. Parthenium weed was firstly found in Okinawa around 1972 (Tachikake and Nakamura, 2007). Recent global warming is likely to result in range expansion of the weed to other parts of Japan.

Vietnam: Dr Thi Lan Thi Nguyen from Department of Ecology and Evolution Biology University of Sciences Vietnam presented a country report on Vietnam. In Vietnam, parthenium weed has been present in the Hanoi and surrounding regions from about 1922. Infestations of parthenium weed are present along roadsides, in fallow land, from the north to the south of Vietnam. The weed is present in around the capital city, Hanoi, and in several protected areas (including Ba Be, Cat Ba, Xuan Son, Tam Dao, Cuc Phuong National Parks and Huong Son Protection Forest) in the north of Vietnam. A recent survey revealed that parthenium weed was present in many provinces in the north such as Cao Bang, Bac Kan, Son La, Thai Nguyen, Phu Tho, Vinh Phuc, Bac Ninh, Hanoi Capital, Hung Yen, Hai Duong, Hai Phong, Ha Nam, Nam Dinh, Hoa Binh and Ninh Binh. No parthenium weed was present from Ho Chi Minh City to the Mekong Delta, the most southerly region of Vietnam. However, parthenium weed was possible present at the rest of the North and the Central region of Vietnam.

Workshop recommendations:

1. At the conclusion of the individual country reports, a discussion took place involving all the participants of the workshop. The following items were those that generated the greatest discussion and in some cases, led to recommendations being made. The need for International Collaboration was seen as being critical for a better understanding and management of the weed.
2. Evaluation of the economic losses incurred due to the weed is seen as being important to help convince donor agencies at local and international scale of the weeds importance.
3. Other countries which have recently been invaded by the weed should benefit from countries like Australian and India who have had experience in the management of this weed for more than 50 years. Special reference was made to, with special reference to the biological control program in Australia.
4. The need to educate the public about the health problems caused by the weed, caused by both physical contact and indirect contact through airborne matter. Countries should discourage the weed's usage in floral.
5. There is a need to identify locally adapted, high value, suppressive plants for the suppression of the growth of parthenium weed.
6. Encourage more people to join the IPaWN, contribute to the Newsletter and to develop a website for future use.
7. Use social media, such as Facebook and You Tube to promote the awareness and to disseminate information on parthenium weed.

**APWSS general meeting,
Hangzhou, China**

Date: 19th June 2012, **Time:** 1:00 pm,
Venue: Board Room, New Century Grand Hotel
Hangzhou, China.

People present: 19

Executive Members (10)	
President Dr Steve Adkins	School of Agriculture and Food Sciences, University of Queensland, St Lucia, Queensland, 4072, AUSTRALIA
China Dr Chaoxian Zhan	Department of Weed and Rodent Science, Institute of Plant Protection, Chinese Academy of Agricultural Sciences, Haidian, Beijing 100193, CHINA

Korea Dr Do-Soon Kim	Department of Plant Science, Seoul National University KOREA
Malaysia Dr Baki Bin Bakar	Department of Botany, University of Malaya, 50603 Kuala Lumpur, MALAYSIA
New Zealand Dr Anis Rahman	Team Leader, Plant Protection AgResearch, Ruakura Research Centre Hamilton, NZ
Philippines Dr Aurora M. Baltazar	Crop Protection Cluster, College of Agriculture, University of the Philippines Los Banos, College, Laguna 4031 PHILIPPINES
Sri Lanka Dr Anurudhike Abeysekera	Rice Research and Development Institute, Department of Agriculture, Batalagoda, Ibbagamuwa, SRI LANKA
Thailand Dr Chanya Maneechote	Plant Protection Research and Development Office Department of Agriculture, Ministry of Agriculture and Co-operative, Bangkok 10900, THAILAND
USA Dr Nilda Burgos	Department of Crop, Soil, and Environmental Sciences, Weed Science Faculty, University of Arkansas, Fayetteville, AR 72704 USA
Australasian Dr Trevor James	Plant Protection, AgResearch, Ruakura Research Centre Hamilton, NZ
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Items discussed:

- A brief report was given by the President Dr Steve Adkins, on the 23rd APWSS Conference, the Executive and General meetings held in Cairns, 2011.
- A discussion took place concerning the next 24th APWSS Conference to be held in Indonesia. It was

decided to contact Indonesia to obtain a firm commitment to hosting the next conference. In case Indonesia could not host, the Philippines was selected as a possible reserve option. The President was requested to contact Indonesia for firm commitment and to ask for an article for the next newsletter describing the preliminary arrangements that have been made to host the Conference.

- The vacant Executive position of General Secretary and the ordinary position of Web/Newsletter editor were discussed. Dr Do Soon Kim (A/Professor, Department of Plant Sciences, Seoul National University, Korea) was nominated by Malaysia and seconded by the Philippines, and unanimously elected for the vacant post of General Secretary. Dr Asad Shabbir (A/Professor, Institute of Agricultural Sciences, University of the Punjab, Pakistan) was nominated by Australia and seconded by Korea, and unanimously elected for the vacant post of Web Master and Newsletter Editor.
- A discussion took place concerning whether financial support could be provided for local weed science societies to help in the hosting of scientific meetings, symposia or conferences. It was concluded that further consideration to this matter should be given at the next general meeting. Support for the scientists of least developed countries (Burma, Cambodia, Laos, Bhutan, Nepal) to attend international meetings, should also be considered.
- A suggestion was made by Dr RM Kathiresan that the bylaws of APWSS need to be updated. It was decided that such action could be discussed at the next General meeting.

Dr Nimal Chandrasena's services acknowledged!



It's with great regret I announce the retirement of Dr Nimal Chandrasena from the role as APWSS General Secretary. Nimal first joined the APWSS back in 1985, and has attended most of the Society Conferences since that time. As an Associate Professor of Botany (Weed Science) at the University of Colombo, Sri Lanka, he was instrumental in promoting the field of Weed Science and the

APWSS in that country. In 1989, responding to a need to represent Sri Lanka on a more global and regional level, Nimal led the Sri Lankan initiative to form the 'Weed Science Society of Sri Lanka', in which he was both General Secretary and Editor until 1993. Since moving to Australia in 1993, he has been an active weed researcher and a natural resources manager. In 2008, Nimal took up the role of APWSS Newsletter Editor, resuming the production of the Society Newsletter after a number of years of its absence. In early 2010, Nimal accepted the role of General Secretary and assisted the Society to organise and run the 2011 Conference in Cairns. Thanks Nimal for wonderful service to the Society, we already miss your significant input into the Executive matters of the Society! Steve Adkins.

Upcoming Conferences on Weed Science and Invasive Species Events

18th Australasian Weeds Conference (18AWC)

Dates: 8-11th October 2012,
Venue: Melbourne, Australia
<http://www.18awc.com/>

Global Herbicide Resistance Challenge International Conference

Dates: February 2013
Venue: Perth, Western Australia.
<http://www.herbicideresistanceconference.com.au/>

4th Tropical Weed Science Conference (18AWC)

Dates: 23-25 January 2013,
Venue: Chiang Mai, Thailand
<http://www.TWSC2013.com/>

18th International Conference on Aquatic Invasive Species

Dates: 21-25th April 2013
Venue: Niagara Falls, Ontario, Canada
<http://www.icaais.org/>

16th European Weed Research Society Symposium

Dates: 24-27th June 2013
Venue: Samsun, Turkey
<http://www.ewrs2013.org/default.aspx>



WEED SCIENCE SOCIETY OF THAILAND AND DEPARTMENT OF AGRICULTURE



Welcome to

The 4th Tropical Weed Science Conference (TWSC 2013) “Weed Management and Utilization in the Tropics”

January 23-25, 2013
The Empress Hotel, Chiang Mai, Thailand

Topics will include:

- Biology and Ecology of Weeds
- Utilization of Weeds
- Parasitic Weeds
- Integrated Weed Management in Economic Crops
- Bio-control of Weeds
- Allelopathy in Agriculture
- Management of Aquatic Weeds
- Weedy Rice: Problem and Management
- Herbicide Resistance in Weeds/Crops
- Soil and Environment Aspects
- Formulation, Adjuvant and Application Technology
- Weeds in Climate Change
- Weed Management in Organic Farm
- Herbicide Chemistry and Physiology

Registration:

Call for abstract submission	May, 2012
Abstract submission close	September 30, 2012
Full paper submission close	November 15, 2012
Early bird registration close	November 30, 2012

	Fee for early registration (before deadline)	Fee for late registration (after deadline)
Foreign participant	500 USD	600 USD
Thai participant	5,000 Baht	6,000 Baht
International student	300 USD	350 USD
Thai student	2,500 Baht	3,000 Baht

Fee for an accompanying person: 350 USD

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