

# Asian-Pacific Weed Science Society

## NEWS LETTER

January 2010

Volume 3: Issue 1

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22<sup>nd</sup> APWSS Conference to be held in March 2010

**The 22nd Asian Pacific Weed Science Conference  
will be held during 8-12 March 2010.**

**Venue: Government College (G.C.) University,  
Lahore, Pakistan**

**Conference Theme:**

***Judicious Weed Management- Road To  
Sustainability***

**Please visit the Conference Website  
[www.wssp.org.pk](http://www.wssp.org.pk)**

**All Members and interested parties are  
encouraged to participate.  
APWSS and the Pakistan Weed Science Society  
jointly sponsor the Conference.**

### Contents of this Newsletter:

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- International Workshops on Biological Control and Management of *Chromolaena odorata*, other Eupatorieae and Parthenium, Nairobi, Kenya, October 2010.
- News from Members and Countries
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## Conference Topics:

<ul style="list-style-type: none"><li>• Weed biology, weed ecology and systematics</li><li>• Integrated weed management</li><li>• Weed physiology</li><li>• Chemical weed control</li><li>• Biological weed control</li><li>• Parasitic weeds</li><li>• Herbicide resistance</li><li>• Weed seed dormancy and soil seed banks</li></ul>	<ul style="list-style-type: none"><li>• Species shift and herbicides</li><li>• Invasive weeds and agro-biodiversity</li><li>• Aquatic weed management</li><li>• Allelopathy</li><li>• GMO's</li><li>• Weed management in agronomic and horticultural crops</li><li>• Weed management in turfs and forests</li></ul>
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## Registration Fees:

**Early registration:** US \$ 300

**Late registration:** US \$ 350

**Students:** US \$ 150

## Contacts:

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## Sri Lanka embarks on implementing a National Weed Strategy

Dr. Shanika Jayasekera, Senior Research Officer, SLCARP ([nsjnsj2002@yahoo.com](mailto:nsjnsj2002@yahoo.com)) and the current Coordinator of the National Weed Strategy, sent the following news item.

**Sri Lanka Council for Agricultural Research Policy (SLCARP) is currently undertaking a new initiative to implement a *National Weed Strategy*, engaging multiple stakeholders and following a 'whole-of-government' approach.**

Dr. Nimal Chandrasena, former Associate Professor in Botany (Weed Science), from the University of Colombo, Sri Lanka, is assisting SLCARP in this process.

Dr. Chandrasena is presently a Principal Environmental Consultant working in Sydney, Australia. His involvement in this Sri Lankan government initiative is funded by the UNDP, Colombo Office.

The following is a summary of a recent communiqué issued in this regard:

### Introduction

Weeds are a major constraint to achieving self-sufficiency in Sri Lanka's agriculture. Weeds compete with crop plants for space, light and soil nutrients, and, as a result, they are responsible for reducing the yield of crops by an average of 30-40%, but this figure could be as high as 50% in some instances.

Agricultural weeds are recognised for reducing the quality of crop yields, thereby reducing the productivity of land and farmer's income from agriculture.

Weeds are also a major threat to Sri Lanka's environmental resources. They reduce the quality of Sri Lanka's uniquely native biodiversity and also negatively impact on the health of waterways, which criss cross the country. Weeds in waterways (rivers, streams, tanks and wetlands) and irrigational canals reduce the flow of water, leading to inefficient irrigation; water loss through evaporation; and stagnation of water provides breeding grounds for mosquitoes.

Weeds are best regarded as opportunistic '*colonising species*' or '*pioneers of secondary succession*' that are well adapted to grow in locations where disturbances, caused either by humans or by natural causes, have opened up space. Species can become weeds, because they are competitive, adaptable, highly fecund, and are able to tolerate a wide range of environmental conditions, including those in agricultural fields, or disturbed habitats.

Major aquatic weeds, causing great concern in Sri Lanka include: Water Hyacinth (*Eichhornia crassipes*), Salvinia (*Salvinia molesta*), Alligator Weed (*Alternanthera philoxeroides*), several species of Ludwigia and Milfoils (*Myriophyllum* sp.).



(a) Milfoil

(b) Alligator Weed

(c) Water Hyacinth

(d) Salvinia

Major weeds in Sri Lanka's rice agriculture include the following:

1. Monocotyledonous (narrow-leaved) species like:

- Grasses [i.e. *Echinochloa crus-galli*, *E. colonum*, *Ischaemum rugosum*, *Isachne globosa*, *Leptochloa chinensis*, *Paspalum distichum*],
- Sedges (such as *Cyperus iria*, *C. difformis*, *Fuirena* sp., *Fimbristylis miliacea*) and
- Others (i.e. *Monochoria vaginalis*, *Limnocharis flava*, *Sphenochlea zeylanica*, *Eleocharis* sp.); and

2. Dicotyledonous (broad-leaved) species, like *Ludwigia hyssopifolia*, *L. decurrens*, *L. octovalvis*

New weed problems that are causing great concern in Sri Lanka include:

- 'Weedy Rice' (which are hybrids),
- Giant Mimosa (*Mimosa pigra*) and
- Parthenium (*Parthenium hysterophorus*).

### Current Initiative

SLCARP's National Committee on Plant Protection initially developed the framework for Sri Lanka's **National Weed Strategy (NWS)**, which was published in December 2008.

The Strategy expects to tackle new weed problems, as well as, plan, coordinate and take action on other major weeds affecting Sri Lanka's agriculture, environment and natural resources.

To develop the NWS further, a one-day Workshop was held on 17 August 2009 to seek input from the public and private sector stakeholders. The focus of the Workshop was to develop an **Action Plan**, to implement the NWS.



Photo shows CARP's Executive Director, Prof. Rohan Rajapakse, addressing the Workshop. Dr. Nimal Chandrasena is seated to the left

The event was held at the auditorium of the National Institute of Library and Information Science (NILIS), University of Colombo.

Mr. S Amarasekera, Secretary, Ministry of Agriculture Development & Agrarian Services inaugurated the Workshop, as Chief Guest, with Prof. Rohan Rajapakse, Executive Director, SLCARP.

Dr. Wimaladharm Abeywickrema, Chairman, Central Environment Authority and Prof. Kshanika Hirimburegama, Vice-Chancellor, University of Colombo, were Guests of Honour.



**Photo shows the Chief Guest - Mr. S. Amarasekera, Secretary, Sri Lanka's Ministry of Agriculture Development and Agrarian Services, inaugurating and addressing the Workshop**

More than 80 people, representing various Sri Lankan government departments, authorities, agencies, crop research institutes, Universities and the private sector (Agrochemical Industry) participated in the deliberations.

The Workshop discussed potential adverse impacts of weeds on Sri Lankan Agriculture, identifying key issues, constraints and factors, which contribute to poor on-ground management and coordination in weed management, across all sectors.

The importance of planning border controls, strengthening the Country's National Plant Quarantine Service was highlighted.

The Workshop commenced a dialogue on establishing a national framework, with key principles applicable to effective weed management across broad regions, under a national perspective.

The **Objectives** of the National Weed Strategy were endorsed by the Stakeholders at the Workshop and are to strategically:

1. Prevent the introduction of new weed problems to Sri Lanka
2. Reduce the impact of existing weed infestations
3. Provide a framework and the capacity required to manage weeds more effectively.

The NWS has specific strategies and a series of activities, which are being developed as projects, for implementation, within the above objectives.

The Workshop also provided the opportunity to discuss how weed management may be improved within a fast developing economy and under potential climate change scenarios. Participants agreed on the need to develop resources, such as Weed Identification Manuals, other methods (Weed Risk Assessments) to prevent the entry of new weed incursions.

They also agreed that one of the most significant future challenges is to build the capacity that is required within the field of weed management. The Universities, various government Ministries and Departments and other stakeholders agreed that the NWS will provide a new opportunity to re-build the national capacity for more effective action on weeds, encourage public participation and strengthening of cooperation between various entities involved in weed management.

Planning is currently underway at SL CARP to increase Stakeholder participation and commitment to implement the NWS.

Discussions have been held with several potential donors, and proposals are currently being prepared to seek assistance from agencies like KOICA and JICA, to implement selected elements of the NWS, particularly technical training and capacity building.

The NWS Action Plan has been updated and revised, to include practical means by which weed management across the sectors can be improved and enhanced.

### **Contacts:**

For further information and updates on the NWS, please contact –

**Dr. Shanika Jayasekera**, SLCARP (Phone: 269 7103; [nsjnsj2002@yahoo.com](mailto:nsjnsj2002@yahoo.com))

**Dr. Nimal Chandrasena**, UNDP Consultant for SLCARP on NWS ([nimal.chandrasena@gmail.com](mailto:nimal.chandrasena@gmail.com))



## Alligator Weed is posing a huge threat to Sri Lanka

By Dr. Nimal Chandrasena ([nimal.chandrasena@gmail.com](mailto:nimal.chandrasena@gmail.com))

Alligator Weed (*Alternanthera philoxeroides*) has been accidentally introduced to Sri Lanka, possibly in late-1990s. The evidence is that it was introduced and grown in the south of the country, as a form of 'Mukunuwenna' (*Alternanthera sessilis*), the popular herbage vegetable.

The original infestations have been located in some coconut plantations in Hambantota and Matara Districts in the Southern Province, where Alligator Weed had been grown as an under-crop (Dr. Lakshman Amarasinghe, Department of Agriculture, *personal communications*). Apparently, the mis-identified weed was grown, harvested and then supplied in large quantities, as 'Mukunuwenna', to a number of cities, including Nuwara-Eliya, a picturesque town in the Central Highlands of the island.

Escape into the environment and spread occurred from there, and within a few years, the Department of Agriculture had been alerted. Several Scientists reported the sale of Alligator Weed in local markets as "Rata-Mukunuwenna" (meaning, "Mukunuwenna" from overseas!)

Alligator Weed is now deeply entrenched in Gregory's Lake, a large recreational lake, in Nuwara Eliya. The author first recorded the infestations at Gregory's Lake in 2004, mostly as patches of 20-30 m<sup>2</sup>. The introduction of Alligator Weed to the Lake appears to have occurred by accident, but its current spread is certainly hastened through contaminated machinery and lake management activities.



**Alligator Weed and Water Hyacinth infestations at Gregory's Lake, Nuwara Eliya. The Alligator Weed infestation at the Lake is mixed with Water Hyacinth, Milfoil, several Ludwigia species and aquatic grasses.**

Through 2004-09, the Gregory's Lake infestations expanded in size, and have coalesced to form a very major infestation, several hectares in extent, threatening the entire lake system.

Spread of Alligator Weed has already occurred in Sri Lanka, although outside Gregory's Lake, the infestations are still quite small. There are known infestations of Alligator Weed in various drains and ditches even in the capital city of Colombo and its suburbs.

It is possible that contaminated equipment are involved in the spread of Alligator Weed in various regions. Occasional activities to clear the Gregory's Lake of Water Hyacinth with mechanical and manual labour run the risk of causing further wide-scale spread throughout the island.



**Labourers, physically removing weeds at Gregory's Lake, 2005**



**A Back-hoe, involved in removing weeds at Gregory's Lake, 2005**

Action to control the spread of Alligator Weed has been slow in Sri Lanka, mainly due to the lack of appreciation by stakeholders of the potential risk.

Apart from education and awareness raising, led by the Department of Agriculture, Alligator Weed eradication treatments have been given in some areas, using Glyphosate. However, as recorded recently, the infestation at Gregory's Lake has become so vast, that it poses a huge threat to Sri Lanka.

Based on Australian and Chinese experiences in the past 15 or so years, if Alligator Weed is not contained soon, much of Sri Lanka's waterways, rivers and wetlands will be under a severe threat.

Sri Lanka still considers the two aquatic weeds – Water Hyacinth (*Eichhornia crassipes*) and Salvinia (*Salvinia molesta*) as posing the greatest challenges to the country's waterways. In the author's opinion, the threat of Alligator Weed is sure to surpass the challenges with Water Hyacinth and Salvinia, because Alligator Weed will invade riparian and littoral zones, as well as moist terrestrial habitats.

Discussions with several government authorities have now commenced, including those who manage the Gregory's Lake, highlighting the need for urgent action to eradicate this relatively new, but very significant national threat.

## New Recommendations for Weedy Rice Management in Malaysia

Dr. Azmi Man from MARDI, Malaysia ([azmiman@mardi.gov.my](mailto:azmiman@mardi.gov.my)) sent the following article on the newly developed patent for a weedy rice management system in Malaysia.

### IMIDAZOLINONE TOLERANT RICE - A SOLUTION FOR WEEDY RICE PROBLEMS IN MALAYSIA

#### Introduction

A major factor that contributes to a higher production cost for rice is weed control. Rice farmers throughout the world face a unique weed problem, weedy rice (*Oryza sativa* complex), which is a weedy relative of cultivated rice. Weedy rice has long been a major threat in the direct-seeded rice culture in Asia, especially in Malaysia, and has been proven difficult to control due to its close genetic relation to commercial rice.

At present, there is no selective herbicide available to control weedy rice. Weedy rice is highly competitive, matures early and shatters easily. Annual loss to weedy rice in Malaysia is about USD 52 mil.

The goal is to offer farmers a novel, farmer friendly and effective solution to the weedy rice problem. Imidazolinone herbicide-tolerant rice varieties hold the answer to effective management of weedy rice in direct seeding.

An innovation was achieved through development of local high yielding varieties with tolerance to imidazolinone herbicide. The tolerant gene was non-GMO.

A package known as the **Clearfield Production System** was developed using the imidazolinone tolerant variety, herbicide and stewardship guide.

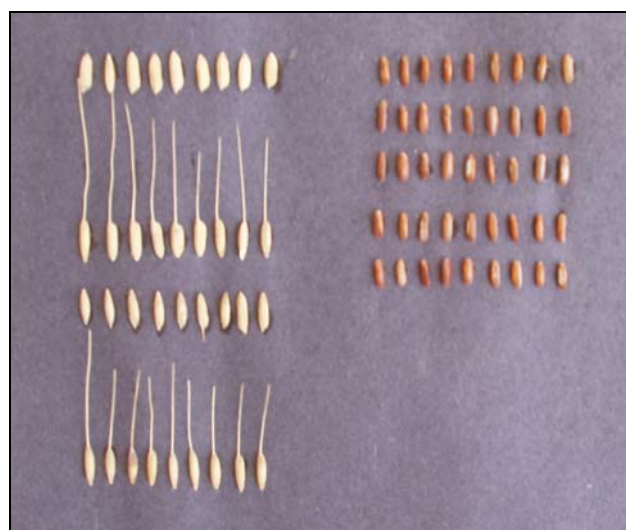
The production system is effective in controlling weedy rice using normal agronomic practices and a 'one shot' herbicide application regime.



Dr. Azmi



Easy shattering of weedy rice



Variation in colour and shape of weedy rice



## Use Recommendation

Numerous herbicide and agronomic trials were conducted to develop farmer friendly use recommendations. The important criteria for farmer friendly use recommendations are:

1. Similar land preparation practices: i.e. weed-free and saturated soil, ready for pre-germinated seeds.
2. Standard sowing practices: broadcasting pre-germinated seeds, using machines currently used, such as blower, drum-seeder or Knapsack row-seeder; or mechanical transplanting.
3. Imidazolinone can be applied using standard equipment such as mist-blower or knapsack sprayer.
4. Imidazolinone is applied at 0 – 7 days after sowing on to saturated soil. Fields may be irrigated at 10 days after sowing. A slight delay in application or irrigation will not jeopardize weed control.



**Weedy rice infested plot (left) and B 55 (imidazolinone tolerant variety) treated with imidazolinone herbicide at 7 days after sowing (right)**

## Benefits of Clearfield Production System

The Clearfield Production System benefits the farmers and millers in Malaysia as follows:

- Clearfield production system for rice is cost effective; the farmer gained up to 2.5t/ha (USD 900) more compared to his weedy rice infested field. Cost of Clearfield production system seeds and herbicide was about USD180/ha.
- Early and effective control of weedy rice will prevent any early competition that cause losses and damage to the wet sown rice crop
- Effectively control weedy rice with one application
- Simultaneously control other noxious rice field weeds
- Reduces contamination from weedy rice, thereby improve the quality of harvest and reduce weedy rice dockages
- Reduces the amount of herbicides released into the environment. The rate of imidazolinone herbicide is 214 g/ha as compared to conventional herbicides that generally ranges from 500 g to 2500 g.
- The excellent pre-emergence activity of imidazolinone herbicide allows delay in flooding, especially in areas with poor water distribution. This condition also inadvertently reduces Golden Apple Snail damage in rice fields

Current normal agronomic practices are sufficient for the application of the Clearfield production system.

**For Information:**

- Dr. Azmi Man and Azlan Shaari, MARDI Station, Seberang Perai, Locked Bag 203, 13200 Kepala Batas, Malaysia.
- Mr. Lim Fang Woei and Mr George Varghese, BASF (Malaysia) Sdn Bhd, 2 Jalan U8/87, Bukit Jelutong, 40706 Shah Alam, Selangor, Malaysia.

Patent #: MY-134925-A

**Announcement from the Editor-in-Chief, Weed Biology and Management**

Dr. Tohru Tominaga, Editor in Chief of "Weed Biology and Management" has sent a request for the weed science community to publish papers in the journal.

As APWSS Members are aware, this prestigious international journal is the official English-language journal of the Weed Science Society of Japan (WSSJ). It is published with cooperation and encouragement of many of the national weed science societies affiliated with the Asian-Pacific Weed Science Society (APWSS).

Contributions from weed scientists in the Asian-Pacific region are particularly welcomed.

You are requested to visit the website ([http://wssj.jp/journal/Instructions\\_for\\_Authors\\_2009.pdf](http://wssj.jp/journal/Instructions_for_Authors_2009.pdf)) for more information. Or else, you could contract the Editor-in-Chief directly, His contact details are:

Dr. Tohru TOMINAGA

Editor-in-Chief, Weed Biology & Management

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Dr. Tominaga has sent the following information regarding contents of the current issue of the Journal.

**Contents of Weed Biology and Management, Volume 9, Issue 4****RESEARCH PAPERS**

- Potential allelopathic rice lines for weed management in Cambodian rice production (p 259-266) - SOPHEA PHENG, MARIA OLOFSDOTTER, GARY JAHN, STEVE W. ADKINS
- Allelopathic potential of Cambodian rice lines under field conditions (p 267-275) - SOPHEA PHENG, MARIA OLOFSDOTTER, GARY JAHN, HARRY NESBITT, STEVE W. ADKINS
- Weed flora and weed management in established olive groves in Albania (p 276-285) - BUJAR HUQI, KICO DHIMA, IOANNIS VASILAKOGLU, REMZI KECO, FATBARDH SALAKU
- A new variety of the weed *Borreria densiflora* DC. (Rubiaceae) (p 286-291) - BIANCA ASSIS BARBOSA MARTINS, ELSA LEONOR CABRAL, VINÍCIUS CASTRO SOUZA, PEDRO JACOB CHRISTOFFOLETI
- Increased foliar activity of clodinafop-propargyl and/or tribenuron-methyl by surfactants and their synergistic action on wild oat (*Avena ludoviciana*) and wild mustard (*Sinapis arvensis*) (p 292-299) - AKBAR ALIVERDI, MOHAMMAD HASSAN RASHED MOHASSEL, ESKANDAR ZAND, MEHDI NASSIRI MAHALLATI
- Effects of a magnetic field and adjuvant in the efficacy of cycloxydim and clodinafop-propargyl on the control of wild oat (*Avena fatua*) (p 300-306) - MOHAMMAD HASSAN RASHED MOHASSEL, AKBAR ALIVERDI, REZA GHORBANI
- Utilization of *Parthenium hysterophorus* for the remediation of lead-contaminated soil (p 307-314) - FAZAL HADI, ASGHARI BANO
- Factors affecting the seed germination and seedling emergence of redflower ragleaf (*Crassocephalum crepidioides*) (p 315-322) - ICHIRO NAKAMURA, MOHAMMAD AMZAD HOSSAIN

**17<sup>th</sup> Australasian Weeds Conference to be held in Christchurch, NZ, September 2010**

The 17<sup>th</sup> Australasian Weeds Conference, sponsored jointly by the New Zealand Plant Protection Society Inc and the Council of Australian Weed Societies Inc, has been announced. This would be held in Christchurch, NZ. The theme of the Conference is 'New Frontiers in New Zealand'.

The dates for the Conference are- **26-30<sup>th</sup> September 2010**. Contact details for further information are:

The Conference Secretariat, Professional Development Group,

PO BOX 84, Lincoln University, Canterbury, 7647, NZ

The Website: [www.17awc.org](http://www.17awc.org) is available for more information.



## 27<sup>th</sup> Brazilian Weed Science Society Congress to be held in Brazil, July 2010

The XXVII<sup>o</sup> Brazilian Weed Science Society Congress has been just announced.

This would be held in Ribeirão Preto, São Paulo State, Brazil, during 19<sup>th</sup> to 23 July 2010.

- Ribeirão Preto is one of the important regions of Brazilian Agribusiness, mainly because it is the sugar-cane and bio-energy capital in Brazil.
- It is also a large business city, with good hotels, facilities and a good airport. The congress will focus on many key issues related to managing weeds, which are current and real.
- Dr. R. A. Pitelli, the Congress Chairman ([rapitelli@ecosafe.agr.br](mailto:rapitelli@ecosafe.agr.br)) invites all interested parties and international weed scientists to participate, in order to make the meeting a success.

## International Workshops on Biological Control and Management of *Chromolaena odorata*, other Eupatorieae and Parthenium to be held in Nairobi, Kenya, October 2010

The 8<sup>th</sup> International Workshop on Biological Control and Management of *Chromolaena odorata* and Other Eupatorieae will be held in Nairobi, Kenya, in October 2010. This Workshop is to be organized under the auspices of the IOBC, and will be hosted by CABI.

- The workshops had been initiated in 1988 to facilitate the management and biological control of *Chromolaena odorata* in resource-poor tropical and subtropical countries.
- In 2003, the scope of the workshop was expanded to include closely related species such as *Mikania micrantha*, while retaining an emphasis on the tropics.
- The entire region of East Africa has been shown to be highly climatically suitable for the weed. Because tourism is the main foreign currency earner in Kenya, and the biggest employer is the agricultural sector, the threat of *C. odorata* is very real.
- The above Workshop will be combined with a Workshop on Management of *Parthenium hysterophorus*, which is spreading in Africa and Asia, causing similar problems to those already experienced in Australia and India, by impacting on agriculture (crops and grazing), biodiversity conservation, and human and animal health.
- The intended purpose of the Workshop in 2010 is to bring together international researchers working on Parthenium, to disseminate information on the weed and its management, and to increase collaboration amongst researchers regionally and globally, to optimise resources for the control of this weed.
- Additionally, it is hoped that this workshop will raise awareness of Parthenium weed for countries that are at risk, or that are in the early stages, of invasion by this weed.

Expressions of interest are being sought from interested in attending the combined Workshops by no later than 30 September 2009.

The contacts are: Costas Zachariades, [ZachariadesC@arc.agric.za](mailto:ZachariadesC@arc.agric.za) or ARC-PPRI, Private Bag X6006, Hilton, South Africa, 3245, fax +27 33 355 9423.

Additional information could also be obtained from Asad Shabbir ([asad@uq.edu.au](mailto:asad@uq.edu.au)), Network Coordinator (IPaWN), The University of Queensland, Australia.

## "Weeds Across Borders 2010" Conference to be held in West Virginia, USA, June 2010

The Center for Invasive Plant Management, Montana State University-Bozeman, USA has announced the 6<sup>th</sup> 'Weeds Across Borders 2010' WAB Conference, to be held during 1-4 June 2010.

- The Conference theme is – 'Plant Invasions: Policies, Politics, and Practices.'
- The venue is Shepherdstown, West Virginia, USA
- Abstract submission deadline: February 22, 2010 (extended from February 8); Notification: March 22, 2010
- WAB is an international conference covering the interests of professionals and organizations involved in weed management and regulation.
- The purpose of the conference is to exchange information and help promote awareness of the ecological, economic and social impacts of invasive species throughout North America.
- Continued continental cooperation across jurisdictional borders will greatly facilitate the prevention and control of non-native plants.

For more information, please visit: <http://www.weedcenter.org/wab2010/index.html>.

## News from Members and Countries

### News from Australia

Steve Adkins ([s.adkins@uq.edu.au](mailto:s.adkins@uq.edu.au)) sent the following news item on the formation of the International Parthenium Network.

#### International Parthenium Weed Network (IPaWN)

The International Parthenium Weed Network (IPaWN) was recently launched following an overwhelmingly positive response to a circulation about the value of setting up such a group.

The Network comprises international experts, scientists and volunteers, devoted to creating awareness about the Parthenium weed threat, and to sharing information on how to reduce its adverse impacts upon agro-ecosystems, the environment and human health.

This Network will be devoted to creating awareness about the Parthenium weed threat, and to sharing information on how to reduce its adverse impacts and how best to manage it. The Network already has over 100 members from 26 countries.

IPaWN is an initiative of the Tropical and Sub-tropical Weed Research Unit (TSWRU), at The University of Queensland, Australia. With research involvement in three continents, TSWRU has started to develop information packages on Parthenium weed and send it out to more than 20 countries that have, or are at threat of getting, this menace.

#### Mission:

IPaWN's mission is to coordinate and disseminate information regarding the global invasion of Parthenium weed, its management, and its diverse impacts on agro-ecosystems, the environment and human and animal health.

**Goal:** The creation of an online community to support international collaboration on the Parthenium weed problem and its management.



#### Objectives:

- To facilitate the exchange of information about Parthenium weed and its management.
- To link different regional working groups, institutions and other stakeholders with an interest in Parthenium weed and its management.
- To document new out-breaks of the weed and to recommend strategies to reduce further spread in those regions.
- To identify topics deserving of new research and to provide access to on-line resources such as identification kits, best practice documents, etc.

Meetings of IPaWN are likely to be timetabled to coincide with major international conferences such as those of the International Weed Science Society, the Asian Pacific Weed Science Society and the International Parthenium Weed Management Conferences.

The Australian Parthenium Weed Research Group and the Pakistan Parthenium Research Group have jointly produced an '**International Parthenium News**' newsletter.

The first issue of the newsletter has just been published and distributed.

The Network contacts are:

Professor Steve Adkins ([s.adkins@uq.edu.au](mailto:s.adkins@uq.edu.au)) and Mr. Asad Shabbir ([asad@uq.edu.au](mailto:asad@uq.edu.au)), TSWRU, School of Land, Crop and Food Science, The University of Queensland, St Lucia, 4072, QLD. Australia.

## News from Bangladesh

Professor Dr. S. M. Rezaul Karim ([rkarimbau@yahoo.com](mailto:rkarimbau@yahoo.com)) provided the following news about a conference on Parthenium management.

### Parthenium weed poses danger to crops in Bangladesh

A seminar on Problems and Management of Parthenium weed arranged by Weed Science Society of Bangladesh (WSSB) in collaboration with SAARC Agriculture Center, Dhaka, held on 19 December at BARC auditorium, Farmgate, Dhaka.

Dr. S.M. Hasanuzzaman, Emeritus scientist, Prof. Dr. A.K.M. Aminul Haque, National Professor and Dr. Md. Wais Kabir, Executive Chairman, BARC, Dhaka were present as guests of honour.

Professor Steve Adkins, University of Queensland, Australia, presented the keynote paper in the seminar. Professor Dr. Md. Hazrat Ali, President, WSSB presided over the seminar.

Professor Dr. S.M. Rezaul Karim, General Secretary, WSSB discussed the present situation of infestation of the Parthenium weed in Bangladesh. Parthenium, a newly discovered, invasive weed, has been posing a serious health problem to human beings and livestock and also causing loss of crops and vegetation in the country. The dangerous weed is affecting many countries in Asia, Africa and the Pacific Islands causing serious environmental problems. It is regarded as one of the worst weeds in Australia because of its invasiveness and economic and environmental impact.

Professor Karim explained that the districts of Jessore, Faridpur, Magura, Narail, Rajshahi, Natore, Sirajganj, Dhaka, Manikganj and Mymensingh have already been infested with Parthenium. The weed has presumably been introduced from India, since most of the infestations are in the bordering areas. He suggested that a comprehensive survey could reveal a wider prevalence of the dangerous plant.

Parthenium weed is toxic to cattle, and meat from livestock that eat the weed can be tainted making it harmful for human beings. It also threatens biodiversity in the infested area. This plant of the herbaceous group has deep tap roots, with erect and much branched stem, that grows up to 2 metres in height in congenial condition. Its leaves are lobed with soft and fine hair. It produces dark-black seeds in star-like white flower. The weed grows in abundance along the roadside and wastelands.



**Photo showing the Seminar in progress; Prof. Karim is first seated on the right and Prof. Steve Adkins is first seated on the left**

Professor Steve Adkins, University of Queensland, Australia, during his recent visit to Bangladesh explained to the WSSB community that Parthenium is causing different agricultural and health problems in countries like Australia, Bangladesh, India, Pakistan, Sri Lanka, Nepal, Ethiopia and Uganda.

Both humans and livestock are affected. Severe allergic effects like eczema and skin rashes, dermatitis, hay fever, etc. result from contact with Parthenium; and asthma, bronchitis and other respiratory problems could result from the intake of Parthenium pollen.

Ulceration in cattle's mouth, toxicity in stomach and even death of livestock may occur from the consumption of the weed. Yield loss of about 40 % in upland crops, including maize, sorghum, wheat, barley and rice, may also occur from infestation of Parthenium.

According to Steve Adkins, the infestation in Bangladesh is now at primary stage and proper care should be taken to control the weed before it spreads beyond control.



Referring to the management aspect, Professor Rezaul Karim said community awareness should be created against the fast spreading of Parthenium and its harmful impact.

He suggested some precautionary measures like washing with waters the body of domestic animals and the vehicles passing through Parthenium infested areas. Cares should be taken during purchasing seed, hay and other fodders so that no weed or weed seeds are embodied in it.

Biological control may also be possible, using leaf eating beetle, seed-feeding weevil and disease- causing fungi. Growing of competitive legume such as butterfly pea (*Clitoria ternatea*) or grasses such as Bisset bluegrass (*Bothrichloa insculpta*), Buffel grass (*Cenchrus ciliaris*) can be grown in the heavily infested area to reduce the spread and invasion, said Professor Karim.

## News from India

R. K. Ghosh, Professor of Agronomy ([rkgbckv@yahoo.com](mailto:rkgbckv@yahoo.com); [rkgbckv@rediffmail.com](mailto:rkgbckv@rediffmail.com)), from Bidhan Chandra Krishi Viswavidyalaya (BCKV), Mohanpur, India, sent the following Report.

These highlight various weed awareness and management activities in West Bengal.

### Orobanche in Brinjal at Purulia, WB



### Parasitic Weed – Orobanche in West Bengal

The first known invasion of the parasitic weed - *Orobanche* in Brinjal was found at Purulia District of West Bengal by the scientists at BCKV.

**Broomrape (*Orobanche*)** is a genus of over 200 species of parasitic herbaceous plants in the family Orobanchaceae, mostly native to the temperate Northern Hemisphere, but widely naturalised elsewhere.

The broomrape plant is small, from 10-60 cm tall depending on species, and is best recognized by its yellow-to-straw coloured stems completely lacking chlorophyll, bearing yellow, white or blue flowers.

The flower shoots are scaly, with a dense terminal spike of 10-20 flowers in most species. The leaves are merely triangular scales. The seeds are minute, tan-to-brown, and blacken with age.

These plants generally flower from late winter to late spring. When they are not flowering, no part of these plants is visible above the surface of the soil.

As they have no chlorophyll, they are totally dependent on other plants for nutrients. Broomrape seeds remain dormant in the soil, often for many years, until stimulated to germinate by certain compounds produced by living plant roots <sup>[21]</sup>. Broomrape seedlings put out a root-like growth, which attaches to the roots of nearby hosts. Once attached to a host, the broomrape robs its host of water and nutrients.

Some species are only able to parasitise a single plant species. Others can infect several genera. Broomrape is considered a major threat to crops in some areas. Plants commonly parasitized are: tomato, brinjal (eggplant), potato, cabbage, ball pepper, sunflower, celery and various beans. In heavily infested areas, Broomrapes can cause total crop failure.

*Editor's Note:*

*The following is a summary of a Report on the 1<sup>st</sup> Invasive Weeds Awareness Programme, March 2009, held in South Bengal, India.*

### THE FIRST INVASIVE WEEDS AWARENESS PROGRAMME, 2009, South Bengal

The "First Invasive Weeds Awareness Programme" was organized by NIWS, DAC, GOI through NRCWS, ICAR, BCKV Centre in collaboration with Crop and Weed Science Society (CWSS), Bidhan Chandra Krishi Viswavidyalaya (BCKV) and Chandamari Sannidhya Rural Welfare Society (CSRWS), Kalyani at Satimata Mandir Prangyan, Kalyani, Nadia on 3<sup>rd</sup> March, 2009.

More than 300 participants were attended including Teachers of BCKV & Local Schools, Scientists and Officers of Institutions, Corporate & Government of West Bengal, Farmers from local 15 villages, Students of University & Schools, Members of CWSS and CSRWS, local youths and common people as well as some reputed Medical practitioners.

Prof. S. K. Sanyal, Director of Research, BCKV delivered the welcome address and in his speech he narrated briefly the activities of BCKV Directorate through NIWS Project personnel's Prof R. K. Ghosh and Associates Surveillance Inspectors about the identification, research on biology & management and awareness of people including the farmers through training programmes of these invasive weeds in South Bengal.

## 1<sup>ST</sup> INVASIVE WEEDS AWARENESS PROGRAMME

Venue: **Satimata Mandir Prangyan, Kalyani, Nadia**  
Date: **3<sup>rd</sup> March, 2009**



Organized by

**Prof. R. K. Ghosh**

Area Coordinator, NIWS, DAC, GOI  
through NRCWS, ICAR



Department of Agronomy  
Faculty of Agriculture  
**Bidhan Chandra Krishi Viswavidyalaya**  
Mohanpur-741252, Nadia, West Bengal



Prof. R. K. Ghosh, the Area Coordinator, NIWS, BCKV Centre explained in details through slide projector about occurrence of invasive weeds and its menace on agriculture, society as well as on humans. He also explained about the research works conducting at BCKV about the surveillance and thereafter biology and eco-friendly management of these invasive weeds.

He highlighted the effort in making *Parthenium* compost by using young *Parthenium* may help to reduce the population of this weed.

The NIWS Surveillance Inspectors distributed the leaflets of Invasive weeds, *Parthenium* management and Preparation of *Parthenium* compost besides demonstrating the live samples of these weeds in front of the gate of this Mancha, which ass immense helpful to the delegates to get acquainted about these invasive weeds.

As proposed by Prof. R. K. Ghosh, the house resolved to commence from 2009-10 "The State *Parthenium* Awareness Week" during February third week each year.

Mr. Sanjeev Chopra, the Principal Secretary, Department of Agriculture, Government of West Bengal was unable to attend; but his Message was read out by the Programme Coordinator Dr. K. Brahmachari, BCKV, accepting the *Parthenium* Awareness Week Programme.

- In addition, Prof. R. K. Ghosh also mentioned the importance of "System of Intensification" as an alternate approach for increasing the agricultural production as well as eco safe quality in the present day agriculture. A leaflet describing this system was also distributed in this Awareness Programme. Mr. Narayan Samanta, Joint Director (Extension), Department of Agriculture, Government of West Bengal was present as Chief Guest in this awareness programme of the Invasive Weeds.
- Both Mr. Samanta, who is in-charge of State's Agriculture to look over the National Food Security Mission (NSFM) activities and Mr. Shyamal Dutta, Directorate of Agriculture, in their speeches highlighted the importance of the Weed Awareness Programme and requested Prof Ghosh to help in the management of weeds, particularly *Parthenium*, *Oryza rufipogon* and other invasive species.
- Mr. Ranjan Ghosh, Joint Director, Rice Research Station, Chinsurah, stressed the need to better manage invasive weeds: Jhara Dhan (*Oryza rufipogon*), Dari Gash (*Juncus papillosus*), Spongy Gash (*Eleocharis congesta*), Gayatsuri (*Cyperus polystachyos*) and other rice invasive weeds in this state and gave assurance the farmers to help them in this matter.
- Mr. Indrajit Debnath, District Plant Protection Officer, Nadia and Mr. Anupam Goswami, Agriculture Development Officer, Chakdah, discussed the quick spreading of invasive weeds due to global warming. They gave assurance to help and work with NIWS, BCKV to solve these issues.
- Dr. Malay Kumar Samanta, MLA, Chakdah in his Special Guest lecture, discussed the programmes at West Bengal about *Parthenium hysterophorus* and assured house that soon he will arrange a meeting with other MLAs at Assembly and also requested Prof. R. K. Ghosh to deliver an address in this meeting about the urgent importance of managing these invasive weeds in West Bengal.
- Mr. Jayanta Chakraborty, Deputy General Manager, M/S Indofil Chemicals Company was also present in this awareness programme as Special Guest. In his short speech he welcomed Prof R. K. Ghosh to conduct such types of Awareness programme and assured all types of help in future.
- The Chief Medical Officer of Kalyani Jawaharlal Neheru Memorial Hospital Dr. Narayan Biswas and a reputed doctor of Kalyani - Dr. Partha Pratim Dhar, in their brief lectures highlighted the ill effects of invasive weed *Parthenium* on human health and they also reported that from the pollen of this weed plant the allergic patient are gradually increasing in Nadia as well as in West Bengal.
- Prof. S. P. Bhattacharya, Former Weed Specialist, BCKV; Prof. G. Sounda, Secretary, CWSS; Prof. A.P. Patra, Agronomy, BCKV and Mr. Aritra Ghosh, Secretary, CSRWS were also present and thanked Prof. Ghosh & his NIWS associates for organizing this Programme.

Dr. R. K. Samanta, Vice-Chancellor, BCKV, who presided at the meeting, thanked the Director of Research and NIWS Project staff, particularly Prof. R. K. Ghosh, Area Coordinator along with SSI Mr. Subhajit Mallick, and SIs of NIWS Mr. Loknath Sharma, Mr. Swapan Kr. Barman, Ms. Pinki Pal for arranging this Invasive Weeds Awareness Programme as per the direction of the NRCWS, ICAR.

The Vice Chancellor, BCKV also assured the house about the sustaining the help from the BCKV authority to spread this type of awareness activities, for the benefit of the farmers of the State.

Five farmers who practiced sound agriculture in the local area of Chakdah Block were felicitated at the Awareness Programme. In their speeches, they narrated how they have benefited from the programme. Other farmers urged for such type of programmes to be held in the rural areas. They also thanked Prof. Ghosh and his associates of NIWS for arranging this programme along with demonstrating through life samples, Posters, Banners and slide shows.

Prof. R. K. Ghosh agreed to hold such future programmes and announced that the next programme will be held on May first week, 2009 at Village Chandamari about the importance of System of Intensification where weed management has a key role. He requested the farmers and students to come forward to establish Model Villages for System of Intensification.

Prof. A. Zaman, Head, Department of Agronomy delivered the vote of thanks.

### **Scientist – Farmer- Common people interaction session**

A well-attended Scientist-Farmer-Common People session was also held. At this session, the following staff members from BCKV were present: Prof. R. K. Ghosh (Agronomy), Prof. S. P. Bhattacharya (Weed Science), Prof. R. Chatterjee (Horticulture), Prof. G. B. Roy (Soil & Water Conservation), Prof. G. Sounda & Dr. Pintoo Bandyopadhyay (Agronomy). In addition, Mr. Malay K. Bhowmik of RRS, Chinsurah, Mr. Suranjan Majumdar, & Mr. Pranab Banerjee (Excel Crop Care), Mr. N. Sanyal of Indofil Chemicals, Mr. A. Haque, Former Pradhan of this area, and some others were also present as experts, along with the BCKV staff. Many farmers and students are participated in the questionnaire Session and lively discussions.

#### *Editor's Note:*

*The following is a summary of a Report on a National Symposium held on the occasion of 5<sup>th</sup> Annual Conference of Crop & Weed Science Society of West Bengal, India.*

### **National Symposium on, "Agriculture in the Paradigm of Intergenerational Equity"**

The Bidhan Chandra Krishi Viswavidyalaya (BCKV), Mohanpur, India organized a National Symposium on the occasion of 5<sup>th</sup> Annual Conference of CWSS. This was held successfully at BCKV on 22- 23 May 2009.



More than 250 delegates from Institutions, Corporations, Government, NGOs, Research Scientists, students and farmers of India and abroad participated in the Symposium. There were five technical sessions, under the following topics: (1) Crop Improvement; (2) New Approaches with Biotechnological Interventions, Tissue Culture, Genetic Modifications & Engineering and Natural Resource Management; (3) Soil-Water-Plant Atmosphere and Environment; (4) Biosafety Issues, Natural Enemies, Microbial Pesticides etc.; and (5) Food and Nutritional Security, Livelihood and Sustainable Development.

In addition, a special valedictory session was held and a number of notable scientists delivered lectures on various aspects on agriculture.

**Prof. S.K.T. Nasar , Chairman , Valedictory Session**, summarized the recommendations of the Symposium. He emphasized on the present problems and the solutions, concluding that the use of the Nation's own quality seed (not imported) is the first step to reducing weed problems. This will reduce the problems of invasive pests like *Phalaris minor* in wheat, or *Parthenium hysterophorus* throughout India. Diversification of crops – inclusion of legume crops in rotation in cropping sequences – is a must in nutrient management, besides using more and more organic manures, bio-fertilizers and lesser the inorganic N fertilizers. Government should give subsidy to the farmers for compost making.



Basal application of organics like neem / karanja cake or vermicompost along with PSB, Azotobacter, Rhizobium etc. with only P & 75 % of K and no N could improve the soil health and vigour of the crop by reducing weed growth. To minimize the water use 'producing crops using drops of water' slogan should be encouraged and restriction to be imposed to use the ground water, thus stop flood irrigation, no submergence of water but to keep moist the soil only.

For the management of major pest weed, cultivation of *Vigna*, *Melilotus*, *Sesbania* etc. during fallow period in between the main crops, or application of Glyphosate 71 @ 3.0 kg ha<sup>-1</sup> should be the major step. The intention should be to reduce the weed seed population under the soil (300 times more than the surface weed flora population) and then to use weed control at critical crop weed competition period.

Using of Neem oil, *Trichoderma* and bio organics should be given priority along with age old practices, the ITKs, for managing the different pests besides using the green and blue labeled lesser toxic pesticides. This will make safe produces and more and more safe environment.

Finally he added that the Research Scientists, Farmers and Policy makers, including the Corporations and NGOs should come forward jointly to implement these outcomes of the Symposium to increase the productivity of Indian Agriculture and to cater for the needs of safe food supply for the people.

## News from Japan

Dr. Tohru Tominaga ([tominaga@kais.kyoto-u.ac.jp](mailto:tominaga@kais.kyoto-u.ac.jp)), Editor in Chief of "Weed Biology and Management" has sent the following information regarding the best paper of the Journal in 2008.

### Announcement from Weed Biology and Management

#### The Best Paper Award of the Weed Biology and Management for 2008

The Weed Science Society of Japan conferred the Best Paper Award of the Weed Biology & Management 2008 on the following authors, on the recommendation of the Committee for the Best Paper Award of WBM.

#### Allelochemicals of barnyardgrass-infested soil and their activities on crops and weeds

Vol. 8, No.4: 267-275.

TRAN DANG KHANH, TRAN DANG XUAN, ILL MIN CHUNG, SHINKICHI TAWATA

Barnyardgrass is one of the most noxious paddy weeds in the world and causes great trouble to many crops. In a bioassay, the aqueous extract of paddy soil infested with Barnyardgrass showed phytotoxic action against the growth of the tested crops and paddy weeds, of which rice was the most suppressed among the crops. In contrast, Barnyardgrass was the least affected paddy weed.

By the use of a separation resin, 18 compounds belonging to terpenes, derivatives of cinnamic acid and ferulic acid, long-chain fatty acids, and steroids that were potentially involved in the phytotoxic activities in Barnyardgrass-infested soil were isolated and identified by gas chromatography-mass spectrometry analysis. Of these, the quantities of linalool, 4-terpinenol, coumaran, methyl phenethyl ketone, and methyl ester cinnamic acid were 1.42, 0.37, 0.02, 3.12, and 4.59 mg g<sup>-1</sup> of the wet soil, respectively.

The herbicidal activity was varied among these qualified test compounds, in which methyl phenethyl ketone and methyl ester cinnamic acid were more herbicidal than coumaran, linalool, and 4-terpinenol. A mixture of these compounds was also the least inhibitive against the growth of Barnyardgrass, but exerted strong suppression against that of rice and Monochoria. The present study demonstrates that Barnyardgrass possesses strong phytotoxic properties and releases plant growth inhibitors into the soil to compete with rice and other paddy weeds in its vicinity by a chemical pathway.

(Cited from Weed Biology and Management Vol. 8, No.4: 267)

## Research Report from Pakistan

The following is an article sent by **Khawar Jabran** from Pakistan. If more information is needed on the studies, please contact Khawar directly via his e-mail address: [khawarjabran@gmail.com](mailto:khawarjabran@gmail.com).

### MANAGING WEEDS IN AEROBIC RICE

Prof. Dr. Ehsanullah and Khawar Jabran

Department of Agronomy, University of Agriculture, Faisalabad, Pakistan

Rice is one of the most important cash crop of Pakistan that was grown on area of nearly 3 m ha with a total production of 6.95 m tons and average yield of 2.35 t ha<sup>-1</sup> during the year 2008-09. It accounted for 5.5% share in value added and 1.1% in GDP of Pakistan. Puddling of the soil, raising nursery and transplanting in puddled fields and continuous flooding are the traditional ways of growing rice in the country. These methods consume enormous amounts of water and require huge labor for the accomplishment of puddling and nursery transplanting process.

Recently, Pakistan is under severe stress of water shortages, like many other parts of the world, which would likely result in some catastrophic drought in the near future. The diminishing water resources have threatened the sustainability of flooded rice culture in Pakistan. This has created a need for scientists to investigate rice production under aerobic conditions, like other cereals such as maize, wheat etc.

Among the various problems faced during this shift process, weeds were the most threatening, which cause in some cases, total crop failure. We conducted a number of experiments during previous two years in an effort to find out sustainable weed control measures for aerobic (direct seeded rice).

Some experiments included the testing of herbicides like butachlor, acetochlor, bispyribac sodium, pendimethalin etc. Others of the experiments comprised of the surface application of black polyethylene sheet, wheat straw, sorghum straw, maize straw, sunflower straw, berseem straw etc. for weed control in the aerobic rice. Nevertheless, some of the experiments were executed to employ the mechanical weed control in aerobic rice.

The overall weed flora of the experimental sites included barnyard grass (*Echinochloa crusgalli*), purple nut sedge (*Cyperus rotundus*), jungle rice (*Echinochloa colonum*), crows foot grass (*Dactyloctenium aegyptium*), horse purslane (*Trianthema portulacastrum*), bitter weed (*Eclipta alba*) and garden spurge (*Euphorbia granulata*).

Pendimethalin and bispyribac sodium proved to be the most effective herbicides for suppressing weeds in terms of density and dry weight and also resulted in higher yields as compared with controls.

Among the mulches, black polyethylene sheet and sunflower straw were most promising in controlling weeds and enhancing crop yields in aerobic rice. On the basis of the results of executed experiments, we have planned further confirmatory studies for the third year.

### News about Forthcoming Conferences

1-4 June, 2010	<b>"Weeds Across Borders 2010"</b> National Conservation Training Center Shepherdstown, West Virginia, USA
4-8 July 2010	<b>12<sup>th</sup> IUPAC International Congress of Pesticide Chemistry</b> To be held in Melbourne, Australia. Contact: E. Gibson, RACI, 1/21 Vale St., North Melbourne, VIC 3051, Australia. Ph: +61-3-9328-2033. <a href="mailto:Elizabeth@raci.org.au">Elizabeth@raci.org.au</a> , or <a href="http://www.iupac.org/web/act/Melbourne_2010-07-04">www.iupac.org/web/act/Melbourne_2010-07-04</a> .
11-14 July 2010	<b>50<sup>th</sup> Annual Meeting of the Aquatic Plant Management Society</b> The 50th Annual Meeting of the Aquatic Plant Management Society will be held July 11-14, 2010 at the Hyatt Regency Coconut Point; Bonita Springs, Florida, USA. For more information, contact the organising committee via the Web Site ( <a href="http://www.apms.org/2010/2010.htm">http://www.apms.org/2010/2010.htm</a> ).
12-15 July 2010	<b>15<sup>th</sup> European Weed Research Society (EWRS) Symposium.</b> To be held in Kaposvar, Hungary. Contact: Secretariat, <a href="mailto:ewrs@asszisztencia.hu">ewrs@asszisztencia.hu</a> . or <a href="http://www.asszisztencia.hu/ewrs">www.asszisztencia.hu/ewrs</a> .
October 2010	<b>8<sup>th</sup> International Workshop on Biological Control and Management of <i>Chromolaena odorata</i> and other Eupatorieae and Workshop on Management of <i>Parthenium hysterophorus</i>.</b> To be held in Nairobi, Kenya. Contact: C. Zachariades, ARC-PPRI, Private Bag X6006, Hilton, 3245, South Africa. <a href="mailto:ZachariadesC@arc.agric.za">ZachariadesC@arc.agric.za</a> .
26-30 September 2010	<b>17<sup>th</sup> Australasian Weeds Conference</b> Sponsored jointly by the New Zealand Plant Protection Society Inc and the Council of Australian Weed Societies Inc, the 17 <sup>th</sup> Australasian Weeds Conference is to be held in Christchurch, NZ. Contact details for further information are as follows: The Conference Secretariat, Professional Development Group, PO BOX 84, Lincoln University, Canterbury, 7647, NZ, or <a href="http://www.17awc.org">www.17awc.org</a> .

## Editor's Column

I intended to publish and get this Newsletter issued in January 2010. However, this was not to be, because of lack of information from the majority of our Member Countries, for wider dissemination. I too was busy in Sri Lanka, before returning to Sydney in late-January 2010, as you would read from the Newsletter.

I am thankful to the members and contributors to this Newsletter. It shows commitment of some individuals and some countries - to the APWSS cause. I keep encouraging other Member countries also to stand up and be counted!

Our 22<sup>nd</sup> APWSS Conference will be held as scheduled in Pakistan in March 2010. Due to the unsettled security conditions in that part of the world, some members have expressed concern about attending. We hope that the conditions have improved and the Local Organizing Committee could hold a good Conference. I encourage all Members and non-members to consider attending.

In the meantime, Steve Adkins is busy with preparations for the 23<sup>rd</sup> Conference, to be held in Cairns, Australia, in 2011.

The next Newsletter will be in June or July 2010. As I have highlighted, there are several weed conferences coming up, which should keep our members busy with dissemination of information.

As usual, I am requesting everybody to think about sharing information regarding weed science and related projects that you are involved with.

There are many stories to tell, as can be seen from the material in the Newsletter. India and Bangladesh are shining examples of interest and commitment to Weed Science, worthy of recognition within our APWSS charter.

Sri Lanka has made a renewed start, as you would glean from the Newsletter. I am hoping that the impetus given would be sustained, and will gain momentum, over the next few years.

Again, I encourage Country Representatives to provide interesting news from their respective Weed Societies and activities. I also welcome ideas on what might be of interest to a broader membership and suggestions to improve the quality of the Newsletter.

Also, kindly distribute the Newsletter as widely as possible, so that we promote collaboration among Weed Scientists particularly in the Asia-Pacific Region, and amongst our Industry Partners.

I look forward to receiving any feedback on the current Issue.

Thank you

Dr. Nimal Chandrasena

Newsletter Editor, APWSS

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