



### MESSAGE FROM THE EDITOR

Dear Colleagues

I am pleased to bring out the Newsletter of the APWSS for the Year 2020 in this month of October. Somewhat, belatedly, of course.

As you will agree, it has been an unprecedented time in the world, due to the COVID-19 pandemic and its effects on all of us.

We hope our weed science community has remained largely safe and alert, as we all await the development of a suitable vaccine. We sympathize with some members who, I am aware, have recovered from the illness.

As the Editor of the Society, I have the responsibility of publishing the new Journal for the Society – **WEEDS**. This task, which has priority over others, such as the Newsletter, takes a great deal of my time, volunteered for the good of the Society.

I, therefore, requested others to help. In this regard, **Dr. Partha P. Choudhury, from ICAR-Indian Institute of Horticultural Research, Bangalore, India**, has stepped forward as an Associate Editor. I thank him for assisting me in this task.



### Update on the Journal – WEEDS

In 2019, Volume 1 of our Journal – *WEEDS* – had two Issues, **publishing 11 papers**. Volume 2 (2020) produced its first Issue on 30 June, publishing **five more papers**. There are several more in the pipeline, undergoing reviews.

However, I need to invite contributions again from anyone interested. The journal now has an ISSN number, registered in Australia. I encourage members to check the following Link to our Journal and benefit from the published articles:

<https://weeds-apwss.scholasticahq.com/>

We will be publishing only **two issues per year**, to be published by 30 June (mid-year) and 31 December (end of year). We have jettisoned the original decision to attempt four issues per year.

To get wider indexations for the article, such as through Google Scholar, CrossRef, Scopus, and the like, there are additional fees involved, which the

Society will consider. I am told that the more we publish, the more our articles are cited, the algorithms driving indexation will pick them up.

Presently, the fee of **US \$ 30 per article**, charged through the SCHOLASTICA Platform, at the time of submission, is only a fraction of the annual cost of the Journal Management System.

As we value 'open access' and do not wish science communications to be blocked by 'paywalls', APWSS will continue to operate this mode as long as we can. It is surely a benefit for our weed research community, dominated by scientists from developing countries and emerging economies of the Asian-Pacific region.

My thanks go to Dr. A. N. Rao, General Secretary, for his untiring efforts to liaise with member societies and on reporting APWSS matters.

Contributions to future Newsletters are welcome from anyone.

### Dr. Nimal Chandrasena

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### MESSAGE FROM THE PRESIDENT

Dear APWSS Members

I thank our office bearers for their roles, commitment, and energy to maintain our Society's profile and activities.

I notice with great interest, the progress that has been made with regard to the new journal and published articles.

When the new Journal was launched, in September 2019, at Kuching. It lifted our Society's profile further, both globally, and in the region. I am proud of this achievement, as the new President.

As the Editor has explained, the Journal's primary purpose is to allow our researchers to publish papers without incurring unaffordable journal publishing costs. We have indeed achieved this ambition!



My next major responsibility is to organize the **28<sup>th</sup> APWSS Conference, in Chiang Mai**, in 2021. However, the COVID-19 pandemic has led to re-scheduling of events, especially conferences and meetings, which have large gatherings.

I have also undertaken to organize the **next (8<sup>th</sup>) IWSC Conference in Bangkok**.

After much deliberation, this has been re-scheduled for December 2021.

Also, after much deliberation, the APWSS Ex-Co advised me that it would not be in the best interest of the APWSS members to have a 'merged' conference. Therefore, we have decided to postpone and re-schedule the APWSS Conference to the latter part of 2022 (Sep-Dec).

Please read the News Item on Page 6 about the IWSC postponement and the proposed new dates. I would be happy to answer any questions regarding IWSC too.

One again, I must thank the current APWSS Ex-Co for their tireless work, which makes it relatively easy for my incumbency as President

Thank you to all. Please engage with the Journal and the Society to build a better network and learn from each other through weed Science and research!

### **Dr. Chanya Maneechote**

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## **MESSAGE FROM THE GENERAL SECRETARY**

Dear APWSS Members and weed research colleagues

I am pleased that Dr. Nimal, Chief Editor, has continued to make time to put together another useful Newsletter.

I also thank, Dr. Partha Choudhury, from India, for stepping up as an Associate Editor to help collate information and put together our Newsletter.



I also understand that our Journal has been commended by many senior weed scientists in the world for taking a bold step in the right direction.

The 'on-line' open-access platform, with only a nominal administrative fee, has helped our Asian-Pacific weed science community. However, much needs to be done, in terms of publicity and citations, for the Journal to make a further expanded impact.

I am also pleased that during the past 12-months, we have had several new 'Life Members' joining the Society. It bodes well for us.

The Society's financial situation, as reported by our Treasurer, has also improved, as a result of new Life Members and contributions from successful recent Conferences (2015, 2017 and 2019).

I was particularly pleased that the 27<sup>th</sup> APWSS Conference (2019) went on smoothly, at Kuching, Malaysia. My report of the Conference is provided in this Newsletter. Despite a lower number of attendees compared with the two previous Conferences, it was an overall success, as evident in the comments I received.

Given the COVID-19 pandemic situation, as indicated by the President, the APWSS Ex-Co has provisionally decided to postpone the next Conference to 2022, possibly, to be held sometime during September to December in that year.

This will most likely push the 29<sup>th</sup> Conference, to be held in China further back. The Ex-Co is yet to take this decision but, like everyone else, is awaiting further developments as the world battles with the production of a vaccine against the virus.

I will keep the members updated on this matter regularly. Just updating the information regarding our Executive, the Members are:

### **APWSS EXECUTIVE Committee:**

President	Dr. Chanya Maneechote, Thailand
Vice President	Dr. Xiangju Li, China
General Secretary	Dr. A. N. Rao, India
Editor-in-Chief	Dr. Nimal Chandrasena, Australia
Treasurer	Dr. Michael Renton, Australia
Past President	Dr. A. S. Juraimi, Malaysia
Chair, Senior Advisory Council	Dr. Steve Adkins, Australia

Details of Country Representatives, who form the Ex-Co are available on our Website. However, these will need updating as some representatives have

changed with time. I have written to the Member Countries to nominate their Representatives.

I also encourage all of the APWSS Members, especially the younger Weed Scientists to become Life Members of the APWSS and strengthen the Society – going forward. Please visit our website: [www.apwss.org](http://www.apwss.org)

We request again Country Representatives to send Country Reports and any other relevant information that we can share among the membership. I regret to inform that, apart from a few countries, a large number of our Member Countries are not keeping our Society updated. I thank those who have diligently done so.

If anyone needs more information about the Society, please feel free to directly contact me. Also, please provide any feedback you may have.

Thank You.

### **Dr. Adusumilli Narayana Rao**

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## **APWSS SENIOR ADVISORY COUNCIL**

During the 50<sup>th</sup> Anniversary 26<sup>th</sup> APWSS Conference in Kyoto, we established a Senior Advisory Council (SAC).

Its primary aim is to act as custodians of organizational traditions, memory and continuity.

This includes providing guidance to the Ex-Co on all matters related to the Society.

Additionally, we envisioned that the SAC would undertake specific strategic actions to promote the Society's vision and goals.

The SAC initially comprised of five senior Members. However, three of the five members have indicated that their circumstances have changed and they are unlikely to contribute in this capacity. The SAC now comprises only myself and Dr. Aurora Baltazar (Philippines) as the second remaining member.

The Ex-Co has discussed the option of reducing the number of the SAC to three members at the next AGM. Given some recent experiences, the Ex-Co has also asked me to refine 'Other roles' that the SAC



may undertake. It would be a much reduced role than previously envisioned in 2017 but may include:

- Assist the Ex-Co, particularly with respect of identifying individuals whose services are to be recognized (i.e. Special Recognition Awards; Life-time Achievement awards).
- Participate/undertake any activity that supports the objectives of the Society.
- Drive forward agreed strategic actions that will consolidate APWSS's global position (i.e. international liaison and engagement with other Societies on any matter related to Weed Science).
- Undertake action aimed at promoting the Society's goals and objectives across the Asian-Pacific region and other regions (i.e. assist other countries, particularly affiliated societies in promoting effective weed management through training courses, workshops, special symposia, publications, etc.).
- Regularly evaluate information on APWSS activities from the Ex-Co and provide feedback for any improvements if required.
- Participate at the biennial Executive Committee meetings or any other meetings, as deemed necessary to support the achievement of societal objectives and goals.

The members of the Senior Advisory Council have full voting rights on any matter for which a majority consensus is sought by the Ex-Co.

I intend to work with the Ex-Co in refining the above possible roles in due course.

Thank You.

### **Dr. Steve Adkins**

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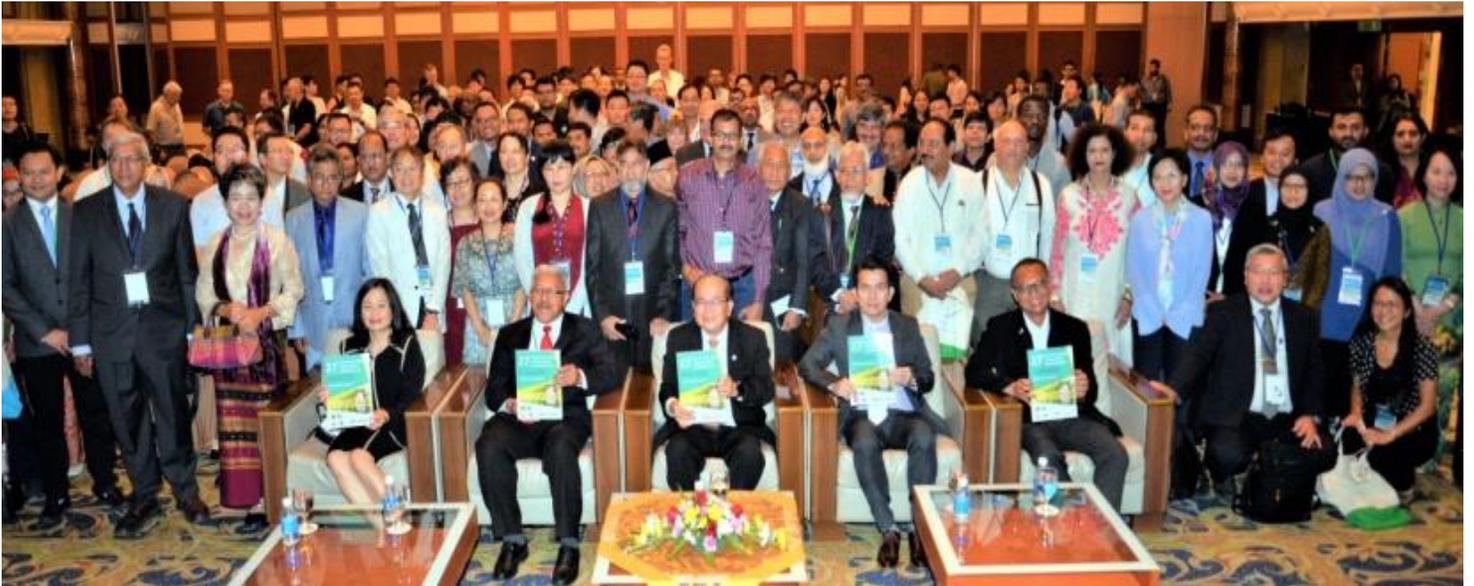
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## **27<sup>th</sup> Asian-Pacific Weed Science Society Conference, Malaysia**

The 27<sup>th</sup> Asian-Pacific Weed Science Society (APWSS) Conference was held in Kuching, Sarawak, Malaysia, during 3-6 September, 2019. It was jointly organized by APWSS and Malaysian Plant Protection Society (MAPPS) under the theme: "Weed Science for Sustainable Agriculture and Environment".



**Photo 1: Delegates at the 27<sup>th</sup> APWSS Conference**

- About 243 weed scientists from 24 countries attended the of the 27th APWSS conference (Photo: 1). The conference was declared open by Hon. Deputy Chief Minister Mr. Datuk Amar Douglas Uggah Embas.
- In the inaugural session, the official Journal of APWSS, **"Weeds - Journal of the Asian-Pacific Weed Science Society"** was inaugurated by Mr. Datuk. The journal platform's web 'on-line' link was provided by Dr. Nimal Chandrasena, the Chief Editor of the Journal (Photo: 2).
- The book on "Invasive Weeds of Malaysia and their sustainable management" (edited by S. M. R. Karim, A. S. Juraimi, A. N. Rao, M. S. Mispan, D. Masilamany, N. Md Zain and L. Naher), was released at the inaugural session of the conference (Photo: 3).
- The keynote address was given by the University of Western Australia (UWA) professor, Dr Stephen Powles, who spoke on 'Herbicide Resistance and its Management in Asian Pacific: Challenges and Opportunities'. He emphasized the need for "diversity" of approaches to manage problem of herbicide resistance in weeds.
- There were seven plenary speakers, one of which was A.N. Rao, who gave a broad overview of 'The progress and future of Weed Science research in the Asian-Pacific Region'.



**Photo 2: Inaugurating the Journal -WEEDS**



**Photo 3: Book launch at the Conference**

- Other plenary speakers were:
  - Emeritus Prof. Robert Zimdahl, Colorado State University, USA,
  - Prof. Steve Adkins, University of Queensland, Australia,
  - Dr. Do-Soon Kim, Seoul National University, South Korea,
  - Dr. S. S. Kaundun, Syngenta, UK,
  - Dr. Michael Day, Dept. of Agriculture and Fisheries, Australia, and
  - Dr. Samunder Singh, Haryana Agricultural University, India.
- The conference covered a wide range of topics related to Weed Science with 12 sub-topics. The participants delivered a total of 111 oral and 68 poster presentations.
- **The International Weed Science Society (IWSS) Student Travel Grants** (USD 500/recipient) were awarded (Photo: 4) to:
  - (i) Nina Gracel Bayla Dimaano, Kyoto University, Japan,
  - (ii) Arslan Masood Peerzada, University of Queensland, Australia, and
  - (iii) Mustaqeem Ahmad, CSIR-Institute of Himalayan Bioresource Technology, India.



**Photo 4: IWSS Student Travel Grant winners**

- **The APWSS Student Travel Grants** (USD 400/recipient) were awarded to:
  - (i) Rajesh Barua, University of Adelaide, Australia,
  - (ii) Azim Syahmi Zafri, Universiti Putra Malaysia, Malaysia,
  - (iii) Amalia Qistina Zulrushdi, University of Malaya, Malaysia,
  - (iv) S. Selvakumar, Tamil Nadu Agricultural University, India and

- (v) Haroon Ur Rashid, University of Haripur, Pakistan (Photo 5).



**Photo 5: APWSS Student Travel Grant winners**

- **Corteva Agriscience Malaysia Student Travel Grants** (RM 1650/recipient) were granted to the following three Malaysian postgraduate students:
  - (i) Intan Filzah Mahmod, University of Malaya,
  - (ii) Nurul Hazwani Mohamed, Universiti Putra Malaysia, and
  - (iii) Engku Ahmad Khairi, Universiti Putra, Malaysia.
- **APWSS Lifetime Achievement Awards** were given to:
  - Dr. Hiroshi Matsumoto, Japan,
  - Dr. Anis Rahman, New Zealand (in absence),
  - Dr. Soekisman Tjitrosemito, Indonesia, and
  - Prof. Khan Bahadar Marwat, Pakistan (in absence).
- The handing over of APWSS flag to China, which will host the 29th APWSS conference, was done at the Annual General Meeting (Photo: 6).
- The Post-conference tour was organized to Sarawak cultural village and to Semenggoh Wildlife Centre on the 6<sup>th</sup> of September 2019.

## Pre-Conference Events

As part of APWSS's commitment to promoting and encourage young Weed Scientists, a "Meet and Greet" event was organized on 2 September 2019, a day before the Conference. This was organized by Dr. Mohd Shakirin Mispan, of the Local Organizing Committee.



**Photo 6: Dr. A.N. Rao, General Secretary, handing over the APWSS Flag to the Chinese delegation who would host the 29<sup>th</sup> APWSS Conference in 2023**

A Paper writing workshop was also held, pre-conference, facilitated by: Dr. Md Kamal Uddin, Faculty of Agriculture, Universiti Putra Malaysia on 2 September 2019 at the conference venue (Photo: 7).

Around 20 Weed Scientists participated in each of these pre-conference events.

Dr. A. N. Rao represented the APWSS Executive, participating as a resource person in both programs.



**Photo 7: Technical paper writing pre-conference workshop, 2 Sep 2019**

### **Executive Committee Meeting**

The APWSS Executive Committee Meeting was held on 2<sup>nd</sup> September 2019. Several Country Representatives were present at the meeting (Photo: 8).

Dr. A. N. Rao was re-elected as Secretary, APWSS. Dr. Chanya Maneechote, President, Weed Science Society of Thailand, took over as President, APWSS (2019-2021).

Dr. Nimal Chandrasena and Dr. Michael Renton were endorsed to continue as Editor and Treasurer, respectively, of APWSS.

China succeeded in bidding for 29<sup>th</sup> APWSS conference to be held in 2023.

Dr. Xiangju LI, President of the Weed Science Society of China was announced as the incoming Vice President, APWSS (2019-2021).



**Photo 8: The Executive Committee Meeting**

The conference provided a platform for useful exchange of scientific and technical information, experiences, and innovative ideas.

It also served to strengthen linkages between the industry, academicians, scientists, and policy makers, both locally and internationally.

As a new initiative, "APWSS – Women's International Network" was formed informally, with Dr. Deirdre Lemerle as the Chair-person (Photo: 9).



**Photo 9: A 'Women's' Forum'**

**[Prepared by Dr. A. N. Rao, General Secretary, APWSS]**

## **Other News**

### **Activities of Weed Science Society of Republic of China (WWSROC Taiwan)**

- The Annual Meeting of Weed Science Society of Republic of China (WWSROC Taiwan) was held on December 27, 2019, at the National Chung-Hsin University.
- The WSSROC has held four training sessions on "Weed management on non-agricultural land" from August to November 2019, commissioned by the Toxic and Chemical Substances Bureau, Environmental Protection Administration, Executive Yuan, R.O.C.
- The WSSROC held three training sessions on "Guideline and promotion for an effective weed management on agricultural land" from September to December 2019, commissioned by the Bureau of Animal and Plant Health Inspection and Quarantine, Council of Agriculture, Executive Yuan, R.O.C.

### **The Weedy Red Rice Team of Taiwan won the prestigious National Team prize**

Research team working on the weedy red rice (WRR) in Taiwan, led by Dr. Dong-Hong Wu, Associate Agronomist of Taiwan Agricultural Research Institute, won the "Team Prize" of the "2019 National Agricultural Science Award", organized by the Council of Agriculture, Executive Yuan, R.O.C.



**Photo 10: Awardees of the 2019 National Agricultural Science Award. The WRR team leader, Dr. Dong-Hong WU (5th from the left); Minister of Council of Agriculture, Mr. Chi-Chung Chen (7th from the left).**

Following the prize winning, the Council of Agriculture provided WRR information through social media in order to raise public awareness on WRR.

### **Farewell to Dr. Yeong-Jene CHIANG**

Dr. Yeong-Jene CHIANG, weed scientist and Director of the Crop Protection Division, Taiwan Agricultural Chemicals and Toxic Substances Research, Council of Agriculture, Executive Yuan, R.O.C, will retire in July 2020, after almost 40 years of service as researcher in a public research institute. He was elected the 16<sup>th</sup> Presidency of WSSROC Taiwan for the year 2011-12.

A seminar on "Novel Plant Protection Technology in Accordance with Pesticide Reduction Policy", as homage to her qualified and quantified contribution to the weed science in Taiwan, will be held on July 10, 2020, in National Chung-Hsin University, Taichung, Taiwan.

[Sent by Dr. Yung-Fen HUANG]

### **News from the Weed Science Society of Pakistan (WSSP)**

#### **The 8<sup>th</sup> international and 15<sup>th</sup> National Weed Science Congress**

The congress was successfully organized by the Weed Science Society of Pakistan (WSSP) in the collaboration with Pakistan Science Foundation (PSF) and Pakistan Academy of Sciences (PAS) at Abdul Wali Khan University Garden Campus, Mardan-Pakistan (March 2-3, 2020).

#### **Accolade to Prof. Khan Bahadar Marwat**

Prof. Khan Bahadar Marwat was conferred Lifetime Achievement Award by the APWSS, on September 4, 2019, in Kuching, Malaysia. He was also awarded a Certificate of Appreciation by the organizers of 3rd International Conference, October 2-3, 2019, at the University of Duhok, Kurdistan Region, Iraq.

#### **Appointment of Dr. Saima Hashim as Member Board of Trustees (BOT), Pakistan Science Foundation (PSF)**

Dr. Saima Hashim, Chairperson Department of Weed Science, University of Agriculture Peshawar, has been appointed as a Member Board of Trustees, Pakistan Science Foundation, by the President of Pakistan. Dr. Saima Hashim attended the APWSS conference as Country Representative.

Dr. Muhammad Ishfaq Khan and Dr. Zahid Hussain from the Department of Weed Science, University of Agriculture, Peshawar were awarded post doc fellowships by the Higher Education Commission of Pakistan.

The Pakistan Journal of Weed Science Research ([www.wssp.org.pk](http://www.wssp.org.pk)) has been rated as one of the recognized Journals by the Higher Education Commission of Pakistan. [From the Pakistan Weed Research Newsletter 2020]

### Activities of the Weed Science Society of Japan

The 59<sup>th</sup> annual meeting of the Weed Science Society of Japan, supposed to be held on April 11 to 12, 2020 in Nagano, central part of Japan, was cancelled due to COVID-19. However, the society published a book of abstracts of 44 oral and 42 poster presentations.

The 60<sup>th</sup> annual meeting will be held on March 27-28, 2021 in Shizuka, Japan. The Society has published both of the issues of volume 20 of the journal Weed Biology and Management. The Society has decided to award financial support to young scientists among society members to attend the 8th International Weed Science Congress, 2020 in Bangkok, Thailand and the 28<sup>th</sup> APWSS [Sent by Dr. Tohru Tominaga]

### ISWS Biennial Conference

The Indian Society of Weed Science (ISWS) held its Biennial Conference on the theme of 'Weed Management for Enhancing Farmers' Income and Food Security' during **February 5-7, 2020** at the ICAR-Central Coastal Agricultural Research Institute, GOA (Photos 11-12).

In this occasion, ISWS Lifetime Achievement Awards were conferred to two noted weed scientists: Dr. N. T. Yaduraju and Dr. Govindra Singh. Dr. V.S. Rao, USA was also honoured for his book "Principles of Weed Science" (Photos 14-15).



Photo 11: Inaugural session

Dr. Prasanta C. Bhowmik, University of Massachusetts presented the keynote address on "Weed management in sustainable agriculture: Farm economy and food security" (Photo 13). He explained that the major challenge to the agricultural community is to understand the complexities of farming practices on environmental quality and climate change and we need to think holistic approach about the smart management practices for food production through sustainable crop production.



Photo12: Inaugural session

There were nine technical sessions in this biennial event, in which 4 plenary presentations, 13 lead papers, 71 oral papers and 170 posters were presented.



Photo 13: Dr. Prasanta Bhowmik delivering the keynote address.



**Photo 14: Dr. N. T. Yaduraju (left) receiving the award. Dr. Sushilkumar, President of the ISWS is on the right.**



**Photo 15: Dr. Govindra Singh receiving the award [From the ISWS Newsletter 2020]**

## Forthcoming events

### 8<sup>th</sup> International Weed Science Congress (IWSC 2020) POSTPONED

The 8th International Weed Science Congress (IWSC 2020) was to have been held in December 2020. This Conference will be hosted by Weed Science Society of Thailand. The main topics will include:

- Herbicide resistance
- Weed Biology and Ecology
- Integrated Weed Management
- Climate Change Aspects of Weed Science
- Non-Chemical Weed Control
- Application Technology
- Economic and Social Aspects of Weed Management
- Environmental Fate of Herbicides
- Weed Issues in Asia
- New Technology for Weed Management
- Weed 'Omics'

Anyone requiring additional information can contact Dr. Chanya ([chanyaku36@gmail.com](mailto:chanyaku36@gmail.com)).

Or feel free to contact the Secretary Dr. Do-Soon Kim ([dosoonlykim@snu.ac.kr](mailto:dosoonlykim@snu.ac.kr)).

#### New dates proposed:

Abstract submission	: <b><u>28 February 2021</u></b>
Early bird registration	: <b><u>31 May 2021</u></b>
Student Travel Grant Awards	: <b><u>28 February 2021</u></b>

Special Assistance Fund application	: <b><u>28 February 2021</u></b>
Outstanding Scientist Award nomination	: <b><u>28 February 2021</u></b>
Weed Photo Contest photo submission	: <b><u>28 February 2021</u></b>

### 28<sup>th</sup> APWSS Conference, 2021

Thailand was awarded the honour and opportunity to host the APWSS 2021 Conference. Dr. Chanya (now President of APWSS) is the primary local organizer of this event. The APWSS Conference will be held at the Imperial Hotel in Chiang Mai, the northern province of Thailand. **The First Circular will be distributed to the APWSS members in 2021.**

### 22<sup>nd</sup> Australasian Weeds Conference, 2021

The Weed Management Society of South Australia (WMSSA), on behalf of The Council of Australasian Weed Societies (CAWS), will host the 22<sup>nd</sup> Australasian Weeds Conference at Adelaide Oval from 10-13 Oct 2021. You can obtain information from: <http://wmssa.org.au/22awc/>.

### 15<sup>th</sup> IUPAC International Congress on Crop Protection Chemistry

The 15<sup>th</sup> IUPAC International Congress on Crop Protection Chemistry will be hosted by the Society for the Promotion of Sustainable Agriculture (SPSA), in association with ICAR-Indian Agricultural Research

Institute (IARI), New Delhi and Institute of Pesticide Formulation Technology (IPFT), Gurugram.

It will and take place at National Agricultural Science Centre Complex (NASC Complex) in New Delhi, India. The 2023 Congress will be focused on following themes:

- a) Development of natural and synthetic agrochemicals,
- b) Develop innovative pesticide formulations,

- c) Emerging issues and stewardship,
- d) Precise analytical techniques for environmental fate and metabolism,
- e) Environmental fate and metabolism,
- f) Soil Biome, metablomics, and
- g) Creation of awareness programme on judicious use of plant protection chemicals.

## Other Conferences:

[XI Weed Science Congress and Symposium on Herbicides and Growth Regulators](#) September 21-24, 2020; Venue: Palić (Serbia)

[10th International IPM Symposium](#) 15-18 March, 2021; Venue: Sheraton Denver Downtown Hotel, Denver, CO, USA

[The International Plant Health Conference \(IPHC\)](#) will take place at the Paasitorni Conference Centre. Further updates will be posted on the IYPH website (<http://www.fao.org/plant-health-2020/>) and on the IPHC web page (<http://www.fao.org/plant-health-2020/IPHC>) 28 June to 1 July 2021; Venue: Helsinki, Finland.

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## Some Wise Words from an Editor:

*"...As an author I cannot think of a single time when the reviewers' comments have not improved the quality of the paper or report. So, when you get a critical review, see it as saving you from a more public mistake. When I review a paper, my goal is see the paper or report improve.*

*Sometimes that means that more work may be needed either in the lab or on the manuscript. While this may be frustrating, my goal is not to inflict pain but to improve the quality of the paper..."*

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## Selected News Stories related to Weeds

### Note from the Editor(s):

We selected a few recent research articles and scientific News items related to weeds, as given below, with the sources. Please enjoy reading!

### Glyphosate: "the studies are so few and so old"

The Bayer pharmaceutical company has agreed to pay about \$10 billion to settle legal claims over the health effects of the herbicide Roundup. The budget will end over 95,000 lawsuits brought against Monsanto (which Bayer bought in 2018), while also allocating money to investigate whether Roundup causes cancer. Specifically, \$1.25 billion will go toward independent research into whether Roundup causes non-Hodgkin's lymphoma (and at what doses).

Monsanto introduced the chemical in 1974. But it took a couple decades before it took off. In 1996 the company released "Roundup-Ready" seeds, which

were pre-treated to avoid damage from the herbicide. By 2014, the global use of the chemical multiplied almost **15 times** over. The World Health Organization has considered glyphosate to **"probably" be carcinogenic** since 2015.

This contrasts with the EPA's Office of Pesticide Programs, which in January released an Interim Registration Review Decision on glyphosate. The interim decision determined **"the pesticide can perform its intended function without unreasonable adverse effects on human health or the environment."**

Soon after this EPA announcement, environmental and food safety organizations filed two lawsuits against the agency. Over the years, those raising

concerns about Monsanto and Roundup have questioned why EPA reviews of glyphosate safety have relied heavily on industry-conducted or industry-funded research papers.

Emanuela Taioli, an epidemiologist at Mount Sinai, who served on the 2016 EPA review board analyzing whether an essential Roundup ingredient caused cancer, welcomes the settlement, and says, 'The money is a step in the right direction'.

(**Source:** Leslie Nemo (2020) More studies are needed on glyphosate, the controversial pesticide in Roundup, to determine how it effects humans (<https://www.discovermagazine.com/environment/the-science-behind-cancer-roundup-herbicide-and-bayers-usd10-billion>)

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### Seeds attached to refrigerated shipping containers represent a substantial risk of non-native plant species introductions to the USA

The initial processes for successful biological invasions are transport, introduction, and establishment. These can be directly influenced or completely avoided through activities that reduce the number and frequency of entering non-native propagules. Economic and environmental benefits through preventative monitoring programs far outweigh the long-term costs associated with mitigating ecological and economic impacts once non-native species establish and spread.

In this study, we identified 30 taxa of hitch-hiking plant propagules on the air-intake grilles of refrigerated shipping containers arriving into a United States seaport from a port on the Pacific coast of South America.

The four monocotyledonous taxa with the highest number of seeds collected were analyzed; we estimated propagule pressure, germination, and survivorship of these taxa, and we used the estimates to determine likelihood of establishment.

The four species were: *Saccharum spontaneum* L., *Typha* sp(p)., *Phragmites* sp(p)., and *Andropogon* sp(p). (Note: it was uncertain if the seeds of *Typha*, *Phragmites*, and *Andropogon* represented a single or multiple species). At the levels of propagule pressure estimated here, non-zero germination and survival rates resulted in high establishment probabilities even when escape rates from shipping containers were modelled to be exceedingly low.

The results suggest high invasion risk for non- native taxa including ***Saccharum spontaneum*** L., a listed Federal Noxious Weed in the USA.

Currently, not all shipping containers arriving at USA ports are thoroughly inspected due to limited personnel and funding for biological invasion prevention. Our results indicate that there is a significant risk from only a few propagules escaping into the environment from this source, and we propose possible solutions for reducing this risk.

(**Source:** Rima D. Lucardi et al. (2020). Seeds attached to refrigerated shipping containers represent a substantial risk of non-native plant species introduction and establishment. *Scientific Reports* volume 10, Article Number:15017 (2020) <https://doi.org/10.1038/s41598-020-71954-3>

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### Weed management strategies effect on glyphosate-tolerant maize and soybean yields and quality

Weed management (WM) is necessary to prevent crop losses through competition with weeds and maintain high yields. However, in the case of glyphosate-tolerant (GT) crops, phytotoxic effects can occur after glyphosate-based herbicide (GBH) applications, which could impact yields and quality.

In order to assess the agronomic performance of six WM strategies on GT soybean [*Glycine max* (L.) Merr.] and maize (*Zea mays* L.), field experiments were conducted in randomized blocks replicated four times (T1: Mechanical weeding; T2: Other herbicide application [Soybean: Chlorimuron ethyl + Imazethapyr] [Corn: Saflufenacil + Dimethenamid-P]; T3: One GBH application; T4: One GBH + other herbicide application [Soybean: Imazethapyr] [Corn: S-metolachlor + Mesotrione]; T5: Two GBH applications; T6: Two GBH applications + other herbicide application [Soybean: Chlorimuron ethyl + Imazethapyr] [Corn: S-metolachlor + Mesotrione]).

In soybean, T1 was the least productive treatment with an average yield of 2,652 kg/ha, while T4, T5, and T6 produced significantly higher yields (4,315, 4,646, and 4,248 kg/ha, respectively). However, the protein content was higher in T1 (42%) than in T3-6 (40.85, 40.55, 40.68, and 40.65%), as well as the linolenic acid content, whereas the total oil content was significantly lower. For maize, there were no significant differences in yields nor in nutritional content for all treatments.

These findings question the systemic usage of GBHs in GT crops. If unnecessary, GBH applications could be reduced, which would relieve the selection pressure for glyphosate-resistant weeds, especially in the case of GT soybean and maize crop rotation.

The core findings of this Canadian study are:

- Glyphosate-based herbicide applications affected soybean quality, but increased yields.
- There was no difference of any weed management strategies on maize quality or yields.
- Systematic usage of glyphosate-based herbicides in GT crops may not always be relevant.

(**Source:** Élise Smedbol et al. (2020). Weed management strategies effect on glyphosate-tolerant maize and soybean yields and quality. *Agroecosystems, Geoscience & Environment*, 2020;3: e20088 (DOI: [10.1002/agg2.20088](https://doi.org/10.1002/agg2.20088)).

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### **Is allelopathy from winter cover crops affecting row crops?**

Cover crops (CC) have been explored in corn (*Zea mays* L.), cotton (*Gossypium hirsutum* L.), soybean [*Glycine max* (L.) Merr.], and wheat (*Triticum aestivum* L.) systems for their allelopathic potential to control weeds. However, allelopathic compounds may negatively affect these row crops by reducing germination, emergence, and grain yields.

The authors reviewed studies that document allelopathic effects of CC on subsequent row crops in field and laboratory settings. They summarized the influence of CC management, including biomass production, planting, and termination timing on allelochemical quantity. The review found only a few studies documenting allelopathic effects of CC on row crops in field settings.

Studies that focus on understanding yield impacts of CC on row crops should be designed to include allelopathic CC-row crop interactions. Understanding the link between CC management and allelopathic dynamics can help avoid impacts on the growth and productivity of the subsequent row crop.

The core findings of this US study are:

- Cover crops (CC) had allelopathic effects on row crop germination in laboratory studies.
- Few studies investigate allelopathic CC-row crop interactions in the field.
- CC had allelopathic effect on row crop in only one field study.
- Increase in CC acreage and evolving CC management justifies greater research efforts.

(**Source:** Katja Koehler-Cole et al. (2020). Is allelopathy from winter cover crops affecting row crops? *Agroecosystems, Geoscience & Environment*, 2020;5: e20015. (DOI: [10.1002/ael2.20015](https://doi.org/10.1002/ael2.20015)).

## **Articles Published in *WEEDS* – accessible to ALL!**

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1. Nimal Chandrasena – Editorial. Making a difference: The new *Weeds* Journal

(<https://weeds-apwss.scholasticahq.com/article/10076-founders-of-the-asian-pacific-weed-science-society-an-appreciation>).

2. Nimal Chandrasena – Special Editorial. Founders of the Asian-Pacific Weed Science Society – An Appreciation.

(<https://weeds-apwss.scholasticahq.com/article/10076-founders-of-the-asian-pacific-weed-science-society-an-appreciation>).

3. Robert Zimdahl - Some Thoughts About Ethics for Agriculture.

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4. Kil-Ung Kim - Broadening the APWSS Horizon in the Asian-Pacific Region.

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5. Peter W. Michael - Taxonomy of *Echinochloa* (L.) P. Beauv (barnyard grass) in the Asian-Pacific Region: An Update.

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6. Partha Choudhury et al. – Biodegradation of Topramezone by a *Trichoderma* Isolate in soil.

(<https://weeds-apwss.scholasticahq.com/article/10085-biodegradation-of-topramezone-by-a-trichoderma-isolate-in-soil>).

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### **Weeds, Vol. 1 Issue 2 (December 2019):**

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(<https://weeds-apwss.scholasticahq.com/article/11526-editorial-seeing-weeds-with-new-eyes>).

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3. Adusumilli. Narayana Rao and Sreenath Dixit - The progress and future of Weed Science Research in Asian-Pacific region.

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4. Michael Day and Arne Witt - Weed Biological Control: Challenges and Opportunities.

(<https://weeds-apwss.scholasticahq.com/article/11532-weed-biological-control-challenges-and-opportunities>).

5. Rajendra Singh Chhokar et al. Flumioxazin and Flufenacet as possible options for the control of multiple herbicide-resistant littleseed canarygrass (*Phalaris minor* Retz.) in wheat.

(<https://weeds-apwss.scholasticahq.com/article/11549-flumioxazin-and-flufenacet-as-possible-options-for-the-control-of-multiple-herbicide-resistant-littleseed-canarygrass-phalaris-minor-retz-in-wheat>).

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### **Weeds, Vol. 2 Issue 1 (June 2020):**

1. Nimal Chandrasena - Editorial. 'Seeing Weeds with New eyes Part II: Some Historical Perspectives and 'Proto Weeds'

(<https://weeds-apwss.scholasticahq.com/article/13526-seeing-weeds-with-new-eyes-part-ii-some-historical-perspectives-and-proto-weeds>)

2. Greg Duns. Smooth Cordgrass (*Spartina alternifolia* Loisl. The Case for Utilization of a Colonizing Plant Species

(<https://weeds-apwss.scholasticahq.com/article/13528-smooth-cordgrass-spartina-alterniflora-loisel-the-case-for-utilization-of-a-colonizing-plant-species>).

3. Gulshan Mahajan and B.S. Chauhan - Weed Biology: A required foundation for effective weed management.

(<https://weeds-apwss.scholasticahq.com/article/13529-weed-biology-a-required-foundation-for-effective-weed-management>).

4. Taslima Zahan et al. Weed control strategies for wheat (*Triticum aestivum* L.) in a cereal-legume cropping system on the Old Brahmaputra Floodplain, Bangladesh.

(<https://weeds-apwss.scholasticahq.com/article/13530-weed-control-strategies-for-wheat-in-a-cereal-legume-cropping-pattern-in-old-brahmaputra-floodplain-bangladesh>).

5. Abul Hashem et al. Management of a herbicide-resistant ryegrass (*Lolium rigidum*) population in a crop rotation using alternative herbicides, row spacing, strategic nitrogen application and RR® canola (*Brassica napus*).

(<https://weeds-apwss.scholasticahq.com/article/13531-influence-of-roundup-ready-canola-herbicides-row-spacing-and-nitrogen-on-herbicide-resistant-rigid-ryegrass-lolium-rigidum-and-crops-in-western-australia>).

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The APWSS Newsletter is an electronic publication to foster better communication and give information to our members and others across the globe interested in weed science.

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