

## President's Message



It has indeed been a privilege and an honour to serve the Society for the last four years. I enjoyed the wonderful opportunity of working with several distinguished and committed persons, whose support and contribution have largely been responsible in steering the society out of woods and to bring the Society to the present level. Organizing the 25th APWSS Conference at Hyderabad during October, 2016 was of course a key achievement and a personal high point in my career. As you are well aware, the 25th APWSS Conference had many firsts to its credit. It brought us much needed credibility and international recognition to ISWS. It was a huge financial success too. The Society today is in a very strong financial position and could be counted among the top few professional societies in agriculture. Thanks to a large number of our sponsors and other stakeholders, who made this happen. The other achievements of the present EC include, introduction of new guidelines for the ISWS Awards, supporting ISWS State units for organizing local events, creating a corpus to provide travel support for students to attend conferences, supporting young scientists for participation at the International conferences held abroad etc. I took personal interest in getting the website redesigned with many unique user-friendly features. One such feature is the online Directory of members. I request members to update their profile periodically to make it more dynamic and useful. The on-going electronic voting for the election of office bearers of the Society for the year 2017-18 is perhaps the first such attempt for any professional society in the country. This saves time, money and more importantly is transparent and prevents bogus voting. I am sure this will find many followers in NARS. Our persistent efforts towards improving the timeliness and the quality of the Journal have given rich dividends. The handsome rating the *Indian Journal of Weed Science* got recently from NAAS is a testimony to this. Coming at the end of our tenure, this indeed

is icing on the cake. I acknowledge the efforts of the Editorial team led by Dr Sushilkumar for this accomplishment. If there is one person who could be singled out for the overall success, it is undoubtedly Dr A R Sharma, the Secretary of the Society. I applaud him for his selfless and committed service to the Society.

I lay down my office as President of ISWS with utmost satisfaction and many happy memories. I am sure the new Team which will take over the reins soon, will do everything at their command to keep the ISWS flag flying high. I wish them all the success.

I look forward to seeing you at Udaipur.

**NT Yaduraju**

## **Research Notes**

### **Herbicidal weed management in Teak (*Tectona grandis* Linn.f) Nursery**

Quality planting material is very essential to achieve good quality timber in teak. The annual planting target of this species in the country is more than 50,000 ha, which are raised through different seed sources. This clearly shows that there is an ample demand for quality seed /planting materials for plantation programme. Stump (a root-shoot cutting) planting is the popular method of raising teak plantations. Stumps with a 1-2 cm diameter prepared out of one-year-old seedlings are planted in polythene containers for few months and then planted in the main field. During this period weeds emerge in polythene containers and adversely affect the growth of the planting materials.

Preliminary studies indicated that application of atrazine at 0.50% (3.0 lit. of spray solution was required for 300 no. of poly bags) as pre-emergence on 3<sup>rd</sup> day after planting of stump could give broad-spectrum control of broad leaved and monocot weeds without affecting the survival percentage and stump growth performance indicating no phytotoxicity on teak seedlings.

***(Contributed by P. Masilamani, C. Chinnusamy, V. Alex Albert and M. Govindaraj, TNAU, Coimbatore)***



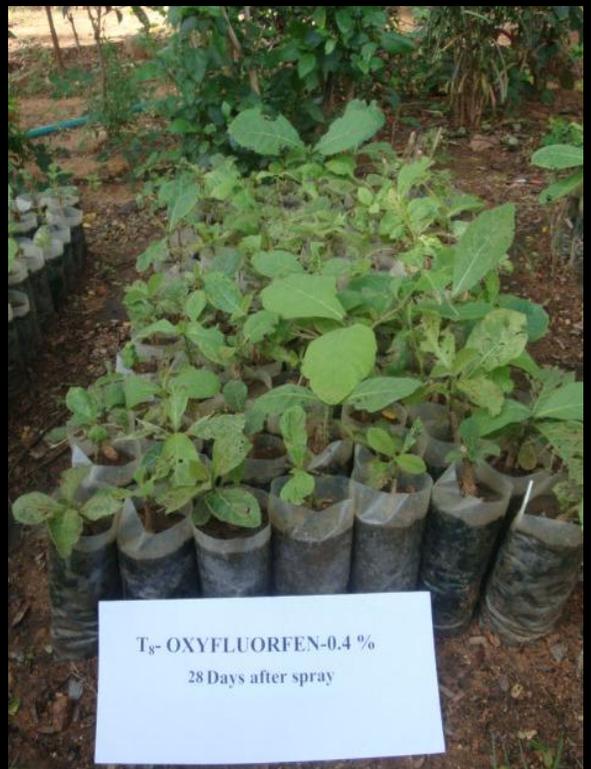
**HERBICIDE UNSPRAYED PLOT**



**HERBICIDE SPRAYED PLOT**



**HERBICIDE SPRAYED PLOT**



**HERBICIDE SPRAYED PLOT**

## **Mobile APPS for effective and safe use of herbicides**

This is the age of Information Technology (IT) and IT is used in every aspect of our daily life. In India, there is emphasis on cashless society for which several apps are recommended for cashless transactions by even common man. IT needs to be used for effective and efficient integrated crop management as well. Apps, if developed, will be of immense use for safer, effective and economic weed management in different crops across the world. Certain apps are available and are being used for effective management of crops across the world.

In USA, companies are launching herbicide combinations that include Dicamba and 2, 4-D to be used only on crops tolerant to one or the other—not both—of those products. The companies have developed guidelines on how to apply these materials as safely as possible and established specific protocols for preventing off-target drift, sprayer cleanout, and nozzle selection. The system allows farmers to place colored flags at entry points of fields and each flag color represents a different kind of technology in use in a specific field. Red flags, for instance, mean do not spray non-specific herbicides. As a part of efforts for safe use of the new herbicide technology, the Texas Plant Protection Association and Texas AgriLife Extension have developed a user friendly mobile app “Flag the Technology”, for smart phones and tablets which helps in identifying fields sensitive to certain herbicides. The app will help enlighten farmers on how to use the new Dicamba and 2, 4-D tolerant crops technology. An option exists for meshing the app with the Texas Crop Registry, a voluntary program that allows producers with sensitive crop areas to register specific fields—including those non-GMO acres, orchards, and others. The Flag the Technology app is available, free, from Google Play and iTunes. Dr. Bob Coulson and Dr. Todd Sink, Texas A&M AgriLife, College Station, have made a presentation on the “Texas Crop Registry and a new smartphone application, Flag the Technology”, at the 28th Texas Plant Protection Conference held in December 2016.

Apps that help in effective, efficient and safe use of herbicides for managing weeds are need to be developed in India also to help the farming community.

### **Information Source:**

<https://www.uaex.edu/publications/pdf/FSA-2162.pdf>

<http://www.southwestfarmpress.com/cotton/flag-technology-app-prevents-misapplication>

<http://aginfotoday.com/News/Flag-the-Technology-App-Prevents-Misapplication-2016-12-15/15502>

**(News item from Dr.A.N. Rao; anraojaya1@gmail.com)**

## **Discussion on ‘Relevance of Herbicide Tolerant Crops in Indian Agriculture- Prospects and Path Forward’ held**

ABLE AG, in partnership with ISWS (Indian Society of Weed Sciences) conducted a half day round table brain-storming session to debate and draw recommendations about the prospects and path forward for herbicide tolerant crops held on 31st August at NASC complex, New Delhi. The meeting was a closed door round table discussion and the invitees included 25 persons consisting of regulators, scientists and industry representatives. Dr N T Yaduraju, President, ISWS emphasized that the annual yield loss due to weeds is more than a lakh crore in addition the weeds cause other related problems during harvesting, processing and marketing. The consumption of herbicides has increased over the years in India. He emphasized the use of non-selective herbicides and the efficiency of Herbicide Tolerant Crop (HTC) technology in managing weeds. The herbicide tolerant crops resistant to non-selective herbicide can meet all the attributes of an ideal herbicide. He summed it up with benefits and risks associated with HTCs.

Dr Ranjini Warriar from MOEF&CC stressed that the issue of HTCs is within the larger issue of GM crops itself, which has been facing resistance because of activism as well as legal challenges. She emphasised that for GEAC, HT trait is like any other trait and it will be reviewed on the merit of the application and GEAC had no issues with the HT technology. Dr Madhumita Biswas, Secretary GEAC, highlighted that the GEAC has reformed itself in the last few months and has taken many steps to make the regulatory review process simple and efficient. The issue of NOC has led to delay in the research trials including that of herbicide resistant crops and there is a plan in place to address this challenge in the coming months. Dr. S.R Rao Advisor, Department of Biotechnology, Government of India highlighted those socio economic issues other than environmental issues such as gene flow, microbial impact need to be studied before the release of the HT crops. In addition an entire package of practices for integrated weed management should be laid out in place prior to approval of any HT crops. Dr Phogat from CIB & RC explained his organizational role and linkage to the regulation of HT crops. He highlighted that the chemical to be sprayed on the HT crops need to be tested and approved first by conducting multi-location field trials, under three climatic zones, for two years in a SAU or ICAR institute. He also explained the additional data requirements such as succeeding crop data, residue analysis, label requirement etc. Both Dr Rao and Dr Phogat stressed on the need for farmer education to avoid indiscriminate usage of herbicides meant to be used on Herbicide tolerant crops. Dr C. Chinnusamy (Professor of Agronomy, TNAU and Vice President, ISWS) and Dr M.S. Bhullar (Senior Agronomist, PAU and Joint Secretary, ISWS) who were involved in BRL trials for RRF cotton and HT maize mentioned that one application of herbicide on maize and two in cotton completely controlled all perennial and annual weeds. They suggested that HT technology is complementing the integrated weed management. The Ministry

of Agriculture representative Dr DS Mishra made a strong pitch for HT crops and need for a clear stand on this technology. Dr Bhagirath Chaudhary made a presentation highlighting the losses caused by weeds and the potential benefits of HT crops.

**Keynotes of the round table:**

- Weeds are a major production constraint in agriculture in India..
- Herbicides are a better alternative for weed management, particularly in view of the severe shortage of farm labour.
- The HTC technology can meet all the requirements of an ideal herbicide. HT crops may overcome the limitations of a typical herbicide such as all weeds not getting controlled, germination in flushes, toxicity to the crop.
- It is a myth to consider that herbicide tolerant technology is a labour displacement technology
- Development of resistance in weeds to herbicides is a universal phenomenon and is not specific to HT crops.
- GM HT technology should be sold as integrated weed management technology coupled with integrated crop production technology.
- It is illogical and unscientific to assume that HT technology will replace labour, affect rural livelihood and deprive rural people the benefit of using weeds as greens and fodder for livestock.
- The stewardship issues must be taken into account while approving HT crops and that the stewardship responsibility lies with the developer.
- GEAC has written to the ICAR on HT policy and a reminder may go from GEAC to ICAR again.
- There needs to be an interface between the GM regulatory board and Pesticide (Insecticides, Fungicides, Herbicides, Rodenticides) regulatory board in sharing the data on common Biosafety studies, sharing data of similar agro-climatic regions of the world when assessing the already approved product for Indian conditions.
- A special session on Biosafety evaluation of GM crops may be conducted to CIB&RC team, and similarly training on the evaluation of herbicides for commercial application can be provided for RCGM and GEAC members.
- A committee may be formed which includes regulators from RCGM, GEAC and CIB to recommend the package and practices for HT crops, as well as outline the stewardship principles and monitoring aspects.

*(Contributed by Dr. AR Sharma, Secretary, ISWS and Director, DWR, Jabalpur)*

**Student Travel Grants to attend 26th APWSS Conference, Kyoto, Japan**

The Asian Pacific Weed Science Society conference will be held at Kyoto, Japan from 19 to 27 September 2017. "APWSS 2017 Kyoto Student Travel Grants":

were announced for students and young scientists by the local organising committee of APWSS. The announced awards include: i. The 26th APWSS Student Travel Grant (5 awards of 30,000JPY each) and ii. The International Weed Science Society (IWSS) Student Travel Grant (3 awards; US \$ 500 each). These Travel Grants and Awards are funded by The 26th APWSS Conference Organizing Committee, the Weed Science Society of Japan, and the International Weed Science Society. These awards provide a unique opportunity for young researchers, especially students to present their research and discuss with leaders in their fields at APWSS Conference and receive encouragement to continue their work. The Travel grants Eligibility and Criteria details of the awards may be obtained from the link: <http://www.c-linkage.co.jp/apwss2017/grants.html>. In addition to these, APWSS 2017 Kyoto Best Oral & Poster Presentation Award also will be awarded and the information of these awards will be provided soon by the organising committee in the website: <http://www.c-linkage.co.jp/apwss2017/index.html>. All the young weed scientists are encouraged to use the opportunity and attend the 26th APWSS Conference at Japan.

*(News item from Dr.A.N. Rao; anraojaya1@gmail.com)*

## **Weed Physiologist from US delivers Guest Lecture at PAU**

Dr. Mithila Jugulum, Associate Professor (Weed Physiologist), in the Department of Agronomy at Kansas State University (KSU), Manhattan, USA delivered a Guest Lecture on 'Herbicides Resistant Weeds: Challenges and Opportunities' at Punjab Agricultural University (PAU), Ludhiana on 3 January, 2017. The lecture was jointly organized by the Indian Society of Weed Science and the Department of Agronomy, PAU Ludhiana. It was attended by the faculty and post graduate students from Departments of Agronomy, Plant Breeding and Genetics, Botany and Chemistry.



Dr. Jugulam stated, "The use of herbicides is an integral part of modern agriculture. However, extensive and repeated use of herbicides results in evolution of weed resistance to herbicides, a challenging constraint of crop production for growers, weed scientists and agri-chemical industry." Her lecture focused on how weeds develop herbicide resistance, investigation of mechanism(s) of weed resistance to herbicides, and effect of temperature on herbicide efficacy as well as development of herbicide-tolerant crops. Dr. Jugulam indicated that understanding of herbicide resistance mechanisms is

essential as it provides valuable information to explain the level of herbicide resistance, frequency and spread of herbicide resistance as well as management of resistance in weeds. Furthermore, this research also helps in assessing the optimum time of application of herbicides for improved weed control, and the identification of strategies that would minimize further development of herbicide-resistant weeds, she added.

Dr. Jugulam also visited weed science field trials in the Department of Agronomy and discussed possibilities of collaborative research in weed science between PAU and KSU. Dr. M. S. Bhullar, Sr. Agronomist, PAU and Jt. Secretary, ISWS thanked Dr. Jugulam for accepting their request for visiting PAU and delivering the seminar.

*(News item from Dr. MS Bhullar, PAU, Ludhiana)*

## Recognitions and Awards



**Dr. Gulshan Mahajan**, Senior Agronomist at the Punjab Agricultural University, Ludhiana has been selected as **fellow of National Academy of Agricultural Sciences (NAAS-2017)**, New Delhi, for his vital contribution towards agronomic development in rice. Dr. Mahajan has made significant contribution for enhancing input use efficiency (water, nutrient and herbicide) in rice-wheat cropping system of Punjab. His research contributions on dry-seeded rice, improved rice agronomy for superior quality especially for basmati rice, integrated weed management in wheat and improved agronomy practices for greenhouse tomato and capsicum have made a significant impact on Punjab agriculture and in making policies for resource conservation.

**Dr MS Bhullar** Senior Agronomist, Department of Agronomy at the Punjab Agricultural University, Ludhiana received an appreciation certificate for his outstanding research work on the development of weed management technologies for field and horticultural crops.



**Dr RM Kathiresan** Director, Research and Development, Annamalai University has been selected for the **best PSO in Agri-‘Krishi Sanstha Samman’** of the **Mahindra Samriddhi India Agri Awards 2017**.

## Obituary

### Prof. Dr. David N. Sen



We express our heartfelt condolences at the sad demise of Prof. Dr. David N. Sen., who breathed his last at Jodhpur on 10th January 2016. He was 82. Professor Sen was the founder of the Ecology School in his Department. He earned global recognition for his research in Arid Zone Plant Ecology; the findings of the US-PL480 project fetched due recognition to this department as an "Information Centre for Weeds of Indian Arid Zone". With his passing away, we have lost a good human being, a distinguished ecologist and a dynamic administrator.

Born on 20<sup>th</sup> December 1934 Prof Sen received B.Sc. and M.Sc. in Botany from Agra University in 1953 and 1955, respectively and D.Sc. in 1962 from Charles University of Prague in the erstwhile Czechoslovakia. He worked at the University of Jodhpur for over 39 years in various capacities, such as Professor, Coordinator UGC-DSA Programme, and Head of Botany Department (twice). During his long academic journey in this Department, he taught various courses and successfully guided 37 students for the award of Ph.D. degree. He wrote 13 Books and published more than 350 original research papers in national and international journals of repute. He started publishing three scientific research journals, namely (i) Indian Review of Life Sciences, (ii) Geobios New Reports, and (iii) Geobios since 1974. Geobios has now entered in 43<sup>rd</sup> year of publication and has a broad subscription base in India and abroad. He was widely respected and a well-known personality in ISWS. He served as the member of the Research and advisory Committee of the DWR, Jabalpur during 2003-05

**May his soul rest in perfect peace.**

## Upcoming Events

### Biennial Conference of ISWS on Doubling Farmers 'Income by 2022: The Role of Weed Science

1-3 March, 2017

**Venue:** Maharana Pratap University of Agriculture and Technology,  
Udaipur, Rajasthan

### 2<sup>nd</sup> Agriculture and Climate Change Conference on Climate ready resource use-efficient crops to sustain food and nutritional security

**Dates:** 26 - 28 March, 2017

**Venue:** Meliá Sitges, Sitges (near Barcelona), Spain

### 2nd Global Herbicide Resistance Challenge Conference "Challenge Accepted"

**Dates:** 14-18 May, 2017

**Location:** Denver, Colorado, USA.  
**Contact person:** Dr. Todd Gaines  
**E-mail:** [todd.gaines@colostate.edu](mailto:todd.gaines@colostate.edu)

**14th World Congress on Parasitic Plants**

**Dates:** 25-30 June, 2017

**Venue:** California, USA.

**Contact Person:** John Yoder

**Email:** [jiyoder@ucdavis.edu](mailto:jiyoder@ucdavis.edu)

**26th Asian-Pacific Weed Science Conference**

**Dates:** 19-22 September, 2017

**Venue:** Kyoto, Japan.

**Contact Person:** Hiroshi Matsumoto

**E-mail:** [hmatsu@biol.tsukuba.ac.jp](mailto:hmatsu@biol.tsukuba.ac.jp)

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