



President's message



GREETINGS, to all who roam the world of crops and weedy plants!

We are in our 7th International Weed Science Congress year and we are looking forward to an intellectually rewarding meeting and a culturally enriching experience in the special City of Prague. Many of us will be first-time visitors to the Czech Republic, or perhaps any place in Europe. Several will be attending the International Congress for the first time. It is my hope that the Congress will catalyze our collective efforts to tackle the increasingly complex challenges in weed management, integrate classical and modern technologies, work in interdisciplinary teams, foster more productive and impactful

international collaborations, and collectively work toward sustainable crop production and global food security. We are extremely fortunate to be working with extraordinary teams of scientists in the organization of the Congress. The Local Organizing Committee, led by Prof. Josef Soukup of the Czech University of Life Sciences in Prague, has done everything possible to enable the Scientific Program Committee (SPC) to implement an excellent Scientific Program, interlaced with unforgettable cultural experiences. Our Congress anchor is GUARANT International, whose representatives are working closely with Prof. Soukup and the SPC in managing registration and abstract submissions, local

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arrangements, and the scientific program. They have been most efficient, considerate, and accommodating.

We are going to have four plenary speakers: 1) Dr. Hermann Stübler (*Weed Control at the Cross Roads – Which innovations are at the horizon*); 2) Christoph Schulze-Stentrop (*Application technique – The challenge of future spraying*); 3) Dr. Lewis H. Ziska (*Climate Change, Co₂ and the consequences for weed biology: Threats and opportunities*); and 4) Prof. Dr. Petr Pyšek, (*Global perspective on plant invasions*). We will have three pre-Congress courses and a joint session with the International Bioherbicide Group (IBG). These are made possible by the SPC, chaired by Dr. Bernal Valverde at IDEA Tropical, Costa Rica; co-chaired by Dr. Hansjörg Krähmer (Germany), and with the invaluable support of Dr. Michaela Kolářová (Czech Republic), and Dr. Kateřina Hamouzová (Czech Republic). The SPC also organized a team of main topic organizers and session organizers who processed more than 800 abstracts. All information about the Congress is available at <http://www.iwsc2016.org/>.

CONGRATULATIONS to the student winners of the Travel Grant Awards! We received over 70 applications. Your membership dues and donations enabled us to award 47. This is a record for the IWSS, which is made possible by the support from the European Weed Research Society (EWRS) and Weed Science Society of America (WSSA). We are indebted to the selection committee, chaired by Prof. Baruch Rubin (Israel), with the help of Prof. Paolo Barberi (Italy), and Prof. Prasanta Bhowmik (USA) who evaluated 73, five-page research papers.

In May, the IWSS members will have the opportunity to select the new set of officers including Vice-President, Secretary, and Treasurer. We have strong candidates from different regions. I am profoundly grateful for their willingness to serve the international community and I am excited to work with whomever the members choose. We will upload the short biographies of the candidates soon so you will be able to preview their qualifications. The election will be conducted online and only members can vote. Therefore, I urge you to renew your membership or apply for new membership so you can participate in the electoral process.

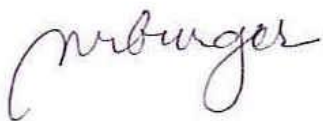
The IWSS Board of Directors is also working on revising our Constitution and By-Laws and Manual of Operating Procedures to reflect our changing needs and to enable us to serve the scientific community better, in keeping with the IWSS goals. These changes will be presented for ratification during the General Assembly wherein the IWSS members will vote to accept or decline the changes. Please make it a point to be at the General Assembly to participate in the process and help shape the future of IWSS.

It is with deep regret that our former President, Prof. Albert Fischer, had to step down due to health reasons. I am humbled to have assumed his role and followed his footsteps and enthusiastic about his progress towards full recovery. Many individuals are helping me carry the load, especially the Board of Directors: Profs.

Baruch Rubin (Past-President), Samunder Singh (Secretary), Franck Dayan (Treasurer), and Bernal Valverde (Ex-Officio). To them, I am most grateful and to all of you, for being part of IWSS.

I look forward to seeing hundreds of you in Prague.

In your service,



NILDA ROMA-BURGOS
President, IWSS

7th International Weed Science Congress

IWSS Board meeting held on 08 February, 2016 in San Juan, Puerto Rico

IWSS Board meeting was held during the WSSA annual meeting of Puerto Rico from 1.00 to 5.00 PM to discuss the progress of 7th IWSC of Prague and Society's update. The meeting was chaired by Dr. Nilda Burgos, Acting President and attended by Dr. Samunder Singh, Secretary IWSS, Dr. Bernal Valverde, Ex-officio member and Chairman Scientific Program Committee for the 7th IWSC, Dr. Josef Soukup, Local Organizing Chair, Dr. Franck Dayan, Treasurer, IWSS and Dr. Carol Mallory Smith, special invitee.

Dr. Nilda Burgos invited all the members to discuss important issues related to organizing of the 7th International Weed Science Society Congress from June 19-25 in Prague, the Czech Republic, bidding process for the 2020 congress; awards to students and scientists, constitutional amendments and elections to the IWSS Board for the term of 2016-2020, financial position of Society and status of IWSS Newsletter.

Dr. Franck Dayan in his treasurer's report informed that Society's finances have steadily improved by almost 40% from 2011 to 2015; this increase pertains the checking account. Growth in the fixed CD investment and the money market is minimal. The 8 month certificate is worth \$38,534 and the checking account balance is \$63,081.45 as of January 31, 2016. This already includes the \$12,000 donation from WSSA to IWSS for the student travel grant.

The total membership stands at 554 with 188 life, 9 affiliate, 17 chapter, and 340 annual members as of January 31, 2016. North America represents the highest

membership (325), followed by Asia (63), Europe (53), South America (35), Australia (28), Africa (23), Middle East (13) and Central America (4). In the Secretary's report, Dr. Samunder Singh discussed the progress of IWSC Prague through annual Board and periodic Skype meetings, call for 2020 IWSC bids, call for International Achievement Awards, Society's activity, web page management, and publication of the Newsletter.



Drs. Bernal Valverde, Carol Mallory-Smith, Franck Dayan, Josef Soukup and Nilda Burgos during IWSS Board meeting, Puerto Rico, USA, 08 February, 2016

Dr. Singh informed that updates of meetings were circulated to all members from time to time to assess the developments leading to the Prague congress.

Drs. Bernal Valverde, Carol Mallory-Smith, Samunder Singh and Franck Dayan, during IWSS Board meeting, Puerto Rico, 08 Feb. 2016



He informed that, three bids have been received from Thailand, Australia, and Brazil and their comparison was made based on different number of participants (700 and 900 in Australian and Brazilian bids, respectively). The Board, however, desired to recalculate the bids based on 750 member's participation. As there were three bids and as per Standard Operating Procedure (SOP) all the three bidders can be invited to make a presentation in the General Assembly of IWSS in Prague to stake their claim for the 8th IWSC of 2020.

Dr. Nilda Burgos also desired that a summary of three bids be uploaded on the IWSS web page in early May so that the IWSS members can have a comparison to help finalizing the bids for the 2020 congress during the Prague congress.

For the Outstanding International Achievement Awards, invitations have been mailed through Newsletter, E-mails to IWSS Members and on the Society's web page. The last date for nomination being 28th February 2016 we can expect more nominations. For fairness in the decision making, the Board decided to have a Chairman, Dr. R. K. Malik from India who was awarded by the Society in 1996 and two more members from outside the IWSS Board. The results of the award winners will be conveyed to the winners by the end of May enabling the scientist's participation in the Prague meeting.

Secretary informed that the web page of the society (www.iwss.info) is dynamic and useful information is updated timely and mailed quickly to all IWSS registered members from the web page. Members can log on to the web page with ease of renewal or accessing the information. The IWSS Facebook page is also active with timely updates.

Dr. Singh also updated on the frequency of Newsletter that has been increased to two per year (April and October), though the October issue is late and is projected to be out soon. April 2016 issue of the Newsletter will be published by mid May 2016 and hope two issue per year will be published. All members are requested to contribute articles for the Newsletter.

Regarding the status of Student Awards; Prof. **Baruch Rubin** could not attend the Board meeting of due to personal reasons, but informed the Board that 73 student abstracts have been received and they are being evaluated on merit. Depending upon the availability of travel grant from EWRS, WSSA and IWSS and the cost of students' travel, efforts will be made to support > 30 students for reduced airfare, accommodation, and registration to encourage young weed scientists' participation. Many of the students' abstracts have been accepted for oral presentation and it is expected that the awardees will be informed by the end of February.

To prepare the plaques/certificates for the awardees (Students, Achievement awards and outgoing IWSS Board members), Dr. Soukup agreed to get them prepared in Prague and Dr. Burgos will provide details for different plaques/certificates.

Dr. Josef Soukup, Local Chair of the Organizing Committee presented a report on the progress of IWSC and informed that so far 740 abstracts have been received. Most abstracts were already reviewed and acceptance sent to authors. The second round of abstract submission will be opened from 15-29 February for poster only and early bird registration will be up to 30th April.

The Congress program has been finalized with Pre-Congress courses, registration, and reception. Plenary and seven parallel sessions will be on Monday, Tuesday, Thursday, and Friday and one full day excursion on Wednesday as well as cultural program. Seven excursions are planned for vegetable/organic farm/local crops and IPM in Bayer crop fields. The four day Congress will have 4 plenary speakers and 301 oral presentation in 49 sessions headed by 11 MTO's and SO's.

Congress dinner for all participants will be held in Žofín palace built in 1835 with 30 min travel distance from the Congress venue. An amount of about €30K has been received from early registration of participants and €585 for Pre-Congress courses. Similarly €1096 has been received for excursions. Sponsorship of €25K from Bayer (Platinum), €12 K each from Syngenta and Adama (Silver), €6K each from BASF, Monsanto, Dow (Bronze sponsors) has been received and €5K is expected from Gylling Data Management and Taylor & Francis. Prof. Soukup requested Prof. Burgos to send a patronage letter to the Ministry of Agriculture and Environment, which she agreed to do at the earliest.

Dr. Bernal Valverde, Chair SPC informed that Graeme Bourdot (New Zealand), Carlos Schaedler (Brazil), Aida Ortiz (Venezuela), Muthukumar Bagavathiannan, Amy Lawton-Rauh, Darrin Dodds (USA), Bhagirath Chauhan (Australia), Neil Harker (Canada), Roland Beffa (Germany), João Paulo Cunha (Brazil) and Marleen Riemens (Netherlands) have accepted the responsibility of session organizers.

Plenary speakers are identified. Dr. Petr Pyšek (Czech Republic) *Global perspective on plant invasions*; Dr. Hermann Stuebler (Bayer, Germany) *Weed Control at the Cross Roads – Which innovations are at the horizon*; Dr. Lewis H. Ziska (USA) *Climate Change, CO₂ and the consequences for weed biology: Threats and opportunities* and invitations are being mailed to them. The fourth speaker, Christoph Schulze-Stentrop (Denmark) *Application technique – The challenge of future spraying*, is contacted and will be finalized soon

With the active support and coordination of Guarant, acceptance letters are being sent along with flyers to all contributors and the website is continuously updated. Some of the abstracts are relocated to other sessions and the MTOs are to define the name of their sessions. Interactive applications for smart phones will be available.

Once the review of student abstract is completed, notification of students about travel awards will be mailed in the first week of April; by mid-April review of additional abstracts for posters will be completed and by 31st May electronic version of the proceedings will be completed.

Dr. Burgos discussed the urgency of constitutional amendments so that the same is approved by the General Assembly in Prague. It was decided to have a committee for this task and volunteers will be sought and suggestions will be invited from other societies also to make the constitution robust and effective in the changed situation. Bianca Martins was appointed to compile and assess information regarding constitutional amendments. The amended constitution will also be uploaded at IWSS web site so that the members can go through and help in its improvement and acceptance during the General Assembly in Prague



Drs. Bernal Valverde (L) and Dr. Nilda Burgos and Josef Soukup (R) informing the Open Board meeting about the progress of 7th IWSC Prague, during the WSSA annual meeting in San Juan, Puerto Rico (USA), 09 Feb. 2016

IWSS Board Elections, IWSS Board has initiated the process to fill the vacating positions in the Board for a four year term. Elections will be held for the following three positions:

- 1. Vice-President**
- 2. Secretary**
- 3. Treasurer**

Nominations of suitable/active IWSS member can be made by any Board member or the person can send his/her nomination directly to IWSS Secretary or Acting-President with one page brief bio-data including a photo.

Application date: March 1, 2016 to April 15, 2016.

Voting: May 25-June 10, 2016.

Final result will be announced prior the International Weed Science Congress in June. The elected office-bearers will assume responsibility at the conclusion of IWSC Prague on June 25, 2016.

ISWS Open Board (General) meeting of Tuesday, 9th February, 2016.

The open Board meeting was held on 9th February from 6-7 PM under the Chairmanship of Dr. Nilda Burgos, Acting President, IWSS. Reports were presented by Treasurer, and Secretary of IWSS. Organizing Chair of 7th IWSC and Scientific Program Chair reports were presented by Drs. Soukup and Valverde, respectively, about the progress of Prague Congress, key speakers and the major attractions. Some of the MTOs also attended the meeting. Dr. Aldo Merotto from Brazil Bid discussed brief overview of the proposed site in Rio de Janeiro for the 2020 Congress



CONGRATULATIONS to the student winners of the Travel Grant Awards!

The Students Award Committee Chaired by **Prof. Baruch Rubin** with the support of **Dr. Prasanta Bhowmik (USA) and Dr. Paolo Bàrberi (Italy)** did a commendable job to evaluate the research proposals of 73 contesting students. The competition was very tough and the award committee spent several hours to assess and rank the students on quality of research, novelty, and contribution to the discipline of weed science. Dr. Burgos, Acting President, IWSS congratulated all the winners and encouraged others who could not make it this time.

The Board of Directors of the International Weed Science Society thanks all the participants of the Graduate Students Award Competition and is proud to support **47 Students** (listed below) for the 2016 IWSC of Prague, June 2016 thanks to the generous support from the European Weed Research Society (EWRS) and the Weed Science Society of America (WSSA). Thanks also to the IWSS members as your membership dues and donations enabled us to award so many students.

This is a record for the IWSS, which was only made possible by the support from the EWRS and WSSA. We are indebted to the selection committee, EWRS and WSSA.

There were many other good proposals which could not be supported due to shortage of funds, though this year we have been able to support 57% more students than in the past ever. We hope to continue this tradition in the future with the active support of our partners (WSSA & EWRS).

List of IWSC 2016 Student Awardees				
	SURNAME	INITIALS	COUNTRY	Supervisor
	Larry Burrill award			
1	Chenxi	Wu	USA	Pat Tranel
	IWSC Awadeeee			
2	Matzrafi	Maor	Israel	Baruch Rubin
3	Amnon	Cochavi	Israel	Hanan Eizenberg
4	Markus	Catarine	Brazil	Aldo Merotto
5	Ariel	Noam	Israel	Hanan Eizenberg
6	Kleinman	Ziv	Israel	Baruch Rubin
7	Somerville	Gayle J.	Australia	Michael Renton
8	Chong	Yang	China	Weijun Zhou
9	Geddes	Charles M.	Canada	Robert H. Gulden
10	Reiofeli	A. Salas	USA	Nilda Burgos
11	Siso	Dana	Israel	Hanan Eizenberg
12	Bitomský	Martin	Czech Rep	Sarka Kimalova
13	Chen	Yin	USA	Douglas Doohan
14	Dutta	Writuparna	India	Puja Ray
15	Islam	Faisal	China	Weijun Zhou
16	Morrison	Jane	Spain	Jordi Izquierdo
17	Sarangi	Debalin	USA	Amit Jhala
18	Viji	Nagaranjan	India	C.R. Chinnamuthu
19	Jian	Wang	China	Weijun Zhou
20	Pedroso	R. I. Munhoz	USA	Kassim Al-Khatib
21	Ranaldo	Marzia	Italy	Paolo Barbery
22	Jin Won	Kim	Korea	D S Kim
23	Rouse	CE	USA	Nilda Burgos
24	Shilo	Tal	Israel	Hanan Eizenberg
25	Giliardi	Dalazen	Brazil	Aldo Merotto J
26	González	Ainhoa Zulet	Spain	Mercedes Royuela
27	Tideman	Breanne D.	Canada	Linda Hall
28	Paporisch	Amit	Israel	H Eizenberg
29	Sridevi	Betha	USA	Mithila Jugulam
30	Andrade	Jose	Argentina	Santiago Poggio
31	Escalada	M. Fernández	Spain	Mercedes Royuela
32	Kuzikaro	Hadar	Israel	B Rubin
33	Hahn	Juliane	Germany	Barbel Gerowitt

34	Kaur	Maninder	India	Jagdev Singh
35	Khalaf	Husam SM	Australia	Brian Sindel
36	Mercedes	Gil	Argentina	Graciela Nestares
37	Sindhu	Vinay Kumar	India	Samar Singh
38	Song	Jong-Seok	Korea	D S Kim
39	Strehlow	Becke	Germany	Barbel Gerowitt
40	Alonso	Maria Ayuso	Spain	Miguel Quemada
41	Berry	Pete Allen	USA	C Mallory-Smith
42	Birger	Nitzan	Israel	H Eizenberg
43	Brunharo	Caio A. C. G.	Brazil	Brad Henson
44	Ghosh	Dibakar	India	No commitment
45	Mendes	Kassio	Brazil	V Luiz Tornisielo
46	Samuelson	Spencer	USA	Greg Kruger
47	Sebastian	Derek J.	USA	Scott Nissen

Looking forward to see all the awardees in the June 2016 Congress in Prague.

Dr. Samunder Singh
Secretary, IWSS



IWSS General Assembly

IWSS General Assembly will be held during the 7th IWSC to discuss and approve major changes in the constitution and other important activities on 23rd June 2016 at 4.00 PM. All IWSS members are requested to kindly make it convenient to attend the same.

INDIA

CIMMYT scientist Dr. R.K. Malik wins Crawford Funds Derek Tribe Award

Dr. R. K. Malik, a senior agronomist in the Sustainable Intensification Program at the International Maize and Wheat Improvement Centre (CIMMYT) based in Bihar, India, is the winner of the 2015 Derek Tribe Award. The prestigious Derek Tribe Award is made biennially by the Crawford Fund — a non-governmental organization that raises awareness of the benefits of international agricultural research to Australia and developing countries — to a citizen of a developing country in recognition of their contributions to research in agriculture or natural resource management in a developing country.

As part of the Derek Tribe Award, each recipient visits Australia for two weeks to visit relevant agricultural centres. The intention is that, as a leader of research in their field, they will contribute to enhancing linkages between the recipient's home institution with similar bodies in Australia.

The award recognizes Malik's more than 30 years of work in agricultural research and development dedicated to improving the livelihoods of millions of small and marginal farmers in India. He led the development of a management solution for herbicide resistant *Phalaris minor*, a major weed of wheat. This pioneering



Dr. R.K. Malik, Sr. Agronomist with the Sustainable Intensification Program at CIMMYT, is winner of the 2015 Crawford Fund Derek Tribe Award

research resulted in saving farmers from huge yield losses, nearly one million hectares wheat, and raised wheat productivity in Haryana and Punjab, considered to be India's grain basket, between 1992 and 2000.

Malik's collaborative work with national and international partners and farmer participatory approaches led to achievements in the dissemination and adoption of climate-resilient technologies such as zero-tillage, laser land levelling and direct-seeded rice, as well as policy changes at the government level.

Malik currently serves as the country coordinator for India for the CIMMYT-led sustainable intensification project, Cereal Systems Initiative for South Asia (CSISA). He continues to raise productivity and smallholders' incomes in the eastern states of Bihar, Uttar Pradesh and Odisha, areas where rural poverty, food insecurity and yield gaps of cereal staples are among the most severe in South Asia.

More recently, Malik played an instrumental role in advocating for the early sowing of wheat in Bihar, helping farmers to double production and avoid crop failure from the early arrival of summers and higher temperatures. Malik's team has created a network of more than 2,000 service providers to facilitate easy access of mechanized services among smallholder farmers, who are not able to buy expensive machines, helping them to benefit from modern farming technologies.

Highlighting his life-long passion for understanding the needs of farmers and for ensuring farmers' participation in research, Malik said, "For developing countries like India where farmers are small and marginalized and investment in research is low, the development of new technologies and the process of delivery are inseparable. In fact, a top-down approach could put up barriers to the adoption of new technologies. Listening to farmers and tailoring technologies to serve their needs thus become paramount."

Dr. R. K. Malik, a retired Professor of Weed Science and Director of Extension Education from CCS Haryana Agricultural University, Hisar did pioneering work in the management of resistant *Phalaris minor* in the NW India by promoting Zero Tillage technology. Dr. Malik was Secretary (1995 to 2004) and President (2005 to 2007) of Indian Society of Weed Science and organized many national and international weed science conferences and was a recipient of IWSS Award in 1996 and currently Chairman of IWSS Outstanding International Achievement Award Committee. IWSS congratulates him for his recognition by CIMMYT and wishes him happy time ahead fighting weeds and preserving environment through RCT in the Indo-Gangetic Plains.

Dr. Samunder Singh
Secretary, IWSS



Herbicide resistance in *Rumex dentatus* L. (toothed dock) confirmed

Dr. Samunder Singh, CCS HAU Hisar 125004, INDIA

Rumex dentatus, which was a major broadleaf weed of wheat in north India at the beginning of the century due to large scale adoption of grassy herbicides, viz. clodinafop, fenoxaprop (ACCase) and sulfosulfuron (ALS inhibitors) to manage isoproturon resistant *Phalaris minor* has a full circle with the evolution of resistance to metsulfuron alone and its ready-mix formulations with sulfosulfuron or clodinafop as well as to mesosulfuron + iodosulfuron in Haryana State of India which is the grain basket of the country.



Rumex dentatus in a wheat field in April 2001, before the large scale use of metsulfuron (L) and incomplete control (December 2000) from 2,4-D (R)



Heavy infestation of *Rumex dentatus* in wheat field and emerging seedling (inset) (L) and emergence from 0, 0.5 and 1 cm depth (R)



Rumex dentatus seed rain in the field before harvest, close-up of seed (inset) (L) and adulteration in harvested wheat grains (R)

Metsulfuron was recommended for the control of broadleaf weeds, particularly *Rumex dentatus* as it was not effectively controlled by 2,4-D (re-growth) and other PSII inhibitors recommended for its control in north India, during (1998-99) and later as a ready-mix with sulfosulfuron and clodinafop for broad-spectrum weed control. Complaints received earlier, after ten years of field use, from some farmers about poor control of *Rumex dentatus* by metsulfuron were ascribed to application error and under-dosing.



Effect of metsulfuron on *Rumex dentatus* at farmer's field 15 DAT, January 5, 2015 (L) and carfentrazone 4 DAT (R)

However, reduced efficacy of metsulfuron observed by Senior District Extension Specialist, Dr. R. S. Garg at CCSHAU Krishi Vigyan Kendra farm, Ujha (Panipat) was assessed by Dr. R. S. Chhokar at the Directorate of Wheat and Barley, Karnal under pot studies, and revealed differential control of *Rumex dentatus* from this as well as from other populations during 2014.



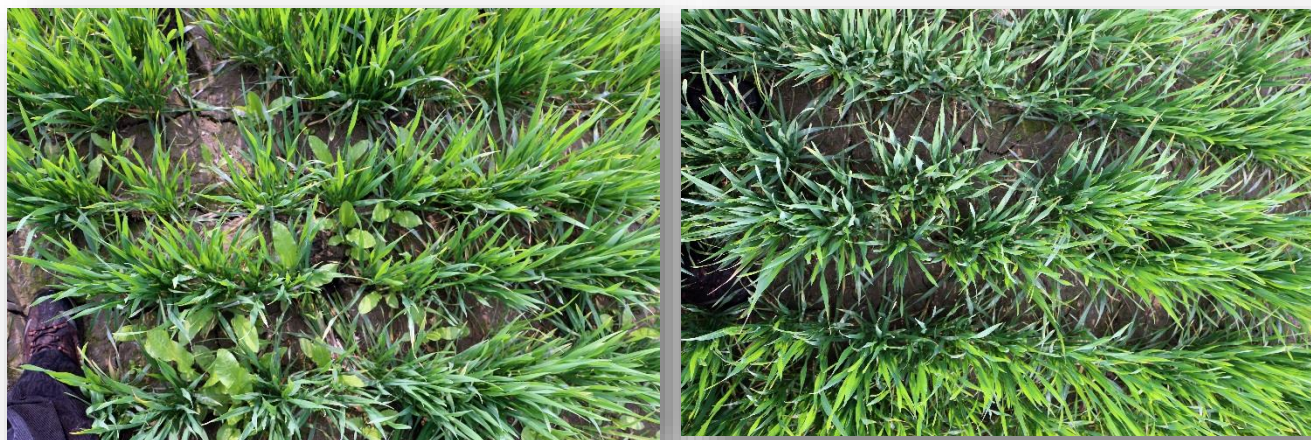
Rumex dentatus interference in wheat at farmer's field in Karnal 74 DAS (L) and at maturity (R)

Field studies carried out during 2015-16 at Ujha farm (Panipat) and at Kheri Raiwali (Kaithal) in farmer's field confirmed resistance. The resistant population was not controlled by metsulfuron at its recommended rate or by the ready



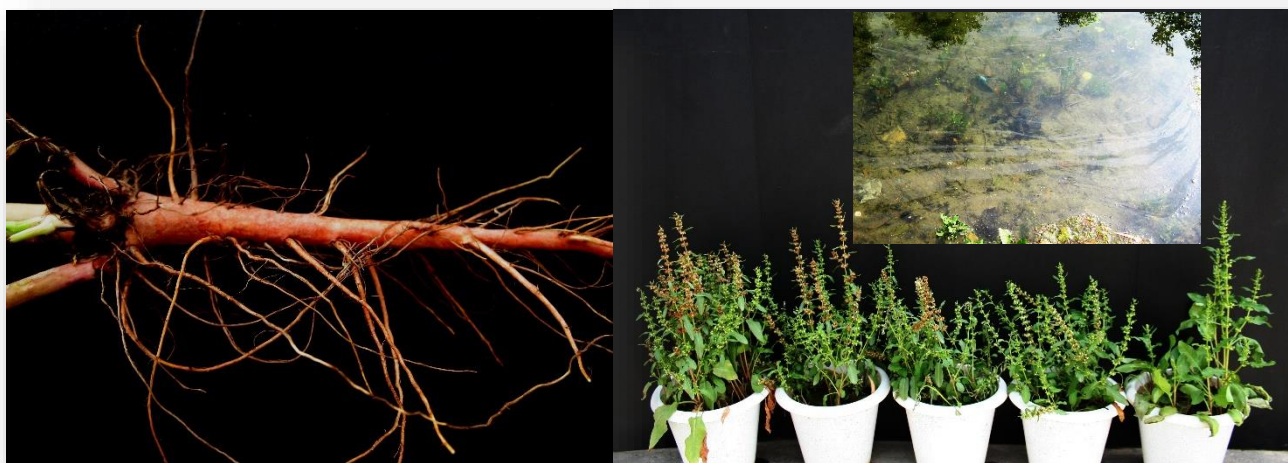
Effect of sulfosulfuron + metsulfuron on *R. dentatus* applied 37 DAS of wheat sowing, 32 DAT (L) and mesosulfuron + iodosulfuron (R), January 30, 2016

mixtures of sulfosulfuron+ metsulfuron and mesosulfuron + iodosulfuron at either location. However, the ready-mix of metsulfuron + carfentrazone was most effective against the resistant populations and performed better than alone application of carfentrazone or 2,4-D ester or amine salt.



Effect of metsulfuron on *Rumex dentatus* applied 37 DAS of wheat sowing, 32 DAT (L) and carfentrazone (R), January 30, 2016

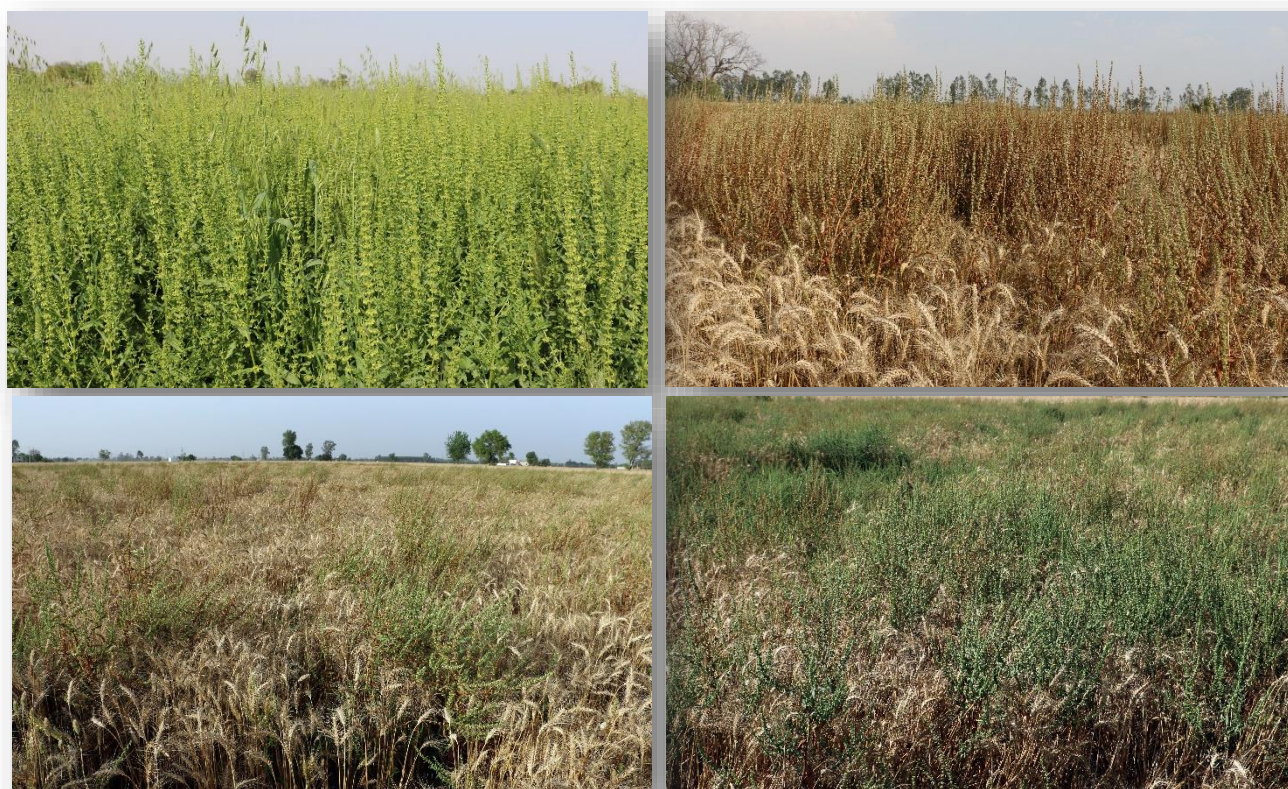
R. dentatus is one of the most competitive weeds of wheat causing more reduction in crop growth and yield than any other of the wheat weeds. Its higher and faster canopy cover, deeper tap root system, greater height, abundant seed



Rumex dentatus tap root (L) and effect of 0, 5, 10, 20, 40 & 80 days of flooding under pot studies, on its emergence and growth (R), underwater survival in Widqyar Lake, Kaithal (inset)

production, emergence from deeper soil depths and survival under flooded conditions poses a major threat for its effective management.

Weed surveys conducted during April 2016 revealed that many fields are infested with dense populations of resistant *R. dentatus*. Pendimethalin at 1.5 kg/ha was found effective against the R and S populations, but its higher cost, application time (Pre-emergence), field moisture level at sowing, and poor tillth have shown inconsistent results. Under zero tillage sowing of wheat, PRE application of pendimethalin can also cause injury if wheat seed are exposed to it.



Rumex dentatus all the way in metsulfuron treated wheat fields, March-April 2016 in different parts of Haryana State, India

The ready-mix formulation of metsulfuron + carfentrazone is recommended for the management of difficult-to-control broadleaf weeds, but the same is not yet available in the market and it is feared that with its continuous use and lower application rate in tank mix (4 and 20 g packing than 5+20 g in ready mix), it may have the same fate that of metsulfuron alone.

USA

56th Meeting of Weed Science Society of America and 69th Meeting of Southern Weed Science Society Sheraton Puerto Rico Hotel and Casino, San Juan, Puerto Rico, February 8-11, 2016

Dallas Peterson, WSSA President and Kevin Bradley, 2016 WSSA Program Chair welcomed all the participants of the joint WSSA and SWSS meeting in San Juan, Puerto Rico. The four day program was packed with different sessions with oral and poster papers, student contest, sustaining member exhibits and committee meeting.

WSSA Photo Contest Awards



Dr. Robert Norris (L) and Toni DiTommaso (R) receiving Photo Contest Awards from Dr. Steven Gylling of Gylling Data Management during the WSSA annual meeting in San Juan, Puerto Rico (USA), 08 February 2016

WSSA Awards

Dr. Kevin Bradley presided the function held on Sunday, 8th February 2016 and presentation of WSSA awards and honors were facilitated by Dr. Dwight Lingenfelter. Outstanding extension and teacher award were given to Dr. Shawn Askew and Dr. Anil Shrestha, respectively; both awards were sponsored by Dow AgroSciences.

Outstanding Research award to Dr. Carol Mallory-Smith

Carol Mallory –Smith is a distinguished Professor of Weed Science at Oregon State University in the department of Crop and Soil Science. Carol grew up in a



Dr. Carol Mallory-Smith receiving Outstanding Research Award from Dr. Dirk Drost of Syngenta (L) and proposing a vote of thanks (R), during the WSSA annual meeting in San Juan, Puerto Rico (USA), 08 February 2016

small rural community of Anatone (Washington) and graduated with a B. S. degree in Plant protection (1986) and a PhD in Plant Science (1990) from the university of Idaho and started her career at the Oregon State University in 1994, where she taught weed management and herbicide science and conducted research in agronomic crops. Her major work was on gene flow and hybridization between crops and weeds, herbicide resistance in agronomic crops and their management using the knowledge of weed biology. She has published >120 research papers, 9 book chapters and guided 40 graduate students. Carol visited Australia and Korea as an expert in gene flow and other weedy issues, as a Fulbright scholar in Argentina, invited speaker in Brazil, Denmark, France, Korea and Thailand and is currently serving on the National Research Council committee on the 'Science Based Look at Genetically Engineered Crps' which is a burning issue worldwide. She was honored for significant achievements as Fellow of the Western Society of Weed Science and Weed Science Society of America (WSSA), served as President and Treasurer of WSSA. College of Agriculture of Idaho University honored her with Alumni Award in 2007, the Oregon State University for Excellence in Graduate Mentoring and Outstanding Weed Scientist by Western Society of Weed Science in 2009, Oregon Department of Agriculture Award for individual contribution to agricultural industry in 2014 and the Western Society of Weed Science Presidential Award of Merit in 2015. She was also Secretary of International Weed Science Society from 1999 to 2001 and Newsletter editor from 1999-2000. IWSS congratulates her for the coveted Outstanding Research Award and wish her many more laurels in the future.



Dr. Gage, Owen, Schwartz and Young, authors of Outstanding Weed Science Paper during the WSSA annual meeting in San Juan, Puerto Rico (USA), 08

Outstanding paper in Weed Science was given to Laurene Schwartz, David Gibson, Karla Gage, Joseph Matthews, David Jordan, Michael Owen, David Shaw, Stephen Miller, Robert Wilson and Bryan Young for Seedbank and field emergence of weeds in glyphosate resistant cropping systems in the United States, Weed Science 63(2):425-439 published in 2015. Karla, David, Michael, David and Bryan are member of International Weed Science Society and IWSS congratulates them for their excellent research publication.

Outstanding paper in Weed Technology was given to Leslie Beck, Aaron Patton, Quincy Law, Dainel Weisenberger, James Brosnan, Jose Vargas Almodovar, Gregory Breeden and Dean Kopsell for their research on Mesotrione activity on crabgrass (*Digitaria* spp.) as influenced by nitrogen fertilizer rate, source and timing published in Weed Technology 29:263-2015 published in 2015. Aaron and Gregory are member of International Weed Science Society and Society congratulates them for their award winning research.

The Committee for Outstanding paper in Weed Science was chaired by Dr. Prasanta Jha and Weed Technology by Dr. Darren Robinson and both awards were sponsored by BASF.

Outstanding Industry Award to Dr. Roger Gast

Dr. Roger Gast with B. S. and M. S. degrees in Agronomy from Nebraska and PhD from University of Illinois joined Dow Chemical in 1987 and worked in several positions in Nebraska, Minnesota, Sacramento, Fresno and Indianapolis over the years. Roger is currently Global Product Development Leader of cereal and broadleaf crop herbicides. In his long illustrious career, he defined the technical and development strategies for pyroxsulam, florasulam, fluroxypyr, clopyralid, Arylex, haloxyfop, pronamide and cloquinocet herbicides.



He is also onboard of U. S. biology team as its leader for cereal herbicide development project. Roger is a member of International Weed Science Society and the Society feel honored for his award by WSSA and wishes him well for his continued work in herbicide development.

Dr. Roger Gast receiving Outstanding Industry Award from Dr. Dallas Patterson, WSSA President during the WSSA annual meeting in San Juan, Puerto Rico (USA), 08 February 2016

Outstanding Reviewer Award to Dr. Thomas Mueller and Karen Renner

Dr. Thomas (Tom) Mueller is a Professor in Plant Sciences Department of the University of Tennessee at Knoxville Campus and most loved weed science Professor by the students. He was born and brought up in a small diversified grain farm in southern Illinois and received his B. S. in Agronomy from the University of Illinois, M. S. in Crop Science from the University of Kentucky and



Dr. Thomas Mueller, winner of WSSA Outstanding Reviewer Award

Ph.D. from the University of Georgia. He specializes in the environmental fate of herbicides in soil, water and air and confirmation and management of glyphosate resistant weeds. His major area of research is very diverse with special emphasis in corn, wheat and soybean as well as canola, cotton, rice, pastures, turf national parks and various other areas, other than teaching undergraduate and graduate courses. He has published >120 articles in >20 journals and has served on EPA Scientific Advisory Board.

Tom served as Associate Editor for Weed Science and Weed Technology, President of SWSS, Secretary, WSSA and was honored as Fellow of WSSA in 2014. He has a very happy married life with his love of life, Sara Mueller and they have three lovely children, Rachel, John and Rebecca. Dr. Mueller is an active member of IWSS and the Society congratulates him for this honor and wishes him more awards in the future.

WSSA Public Service Award to Jill Schroeder



Dr. Jill Schroeder receiving Outstanding Research Award from (L) and proposing a vote of thanks (R), during the WSSA annual meeting in San Juan, Puerto Rico (USA), 08 February 2016

Dr. Jill Schroeder, Weed Scientist/Agronomist with USDA/ARS was honored with Monsanto sponsored WSSA Public Service Award. Jill is working in Washington DC on Pest Management Policies of USDA. She is an Emeritus Distinguished Professor in the Department of Entomology, Plant Pathology and Weed Science at New Mexico State University, Las Cruces having earned the rank of Distinguished Professor. Jill graduated in Biology (B.A.) from Macalester College, M. S. in Soil Science from University of Minnesota and PhD in Agronomy/Weed Science from University of Georgia, and focused on Weed Management and weed interactions with other pests including nematodes, viruses and other insect vectors in her

career. She also served as interim Department Head from 2010 to 2012 and in her current position in the Office of Pest Management Policy as technical expert for weed science, agronomy and management where she evaluates, plans, develops, coordinates, participates and lead in communications and activities reflecting the pest management needs of USDA. She served as the WSSA Subject Matter Expert and Liaison to the EPA, Office of Pesticide Program from 2009-2012 and is currently member of the Herbicide Resistance Education Committee and served as steering member of the 2012 NAS Summit on Strategies to Manage Herbicide Resistant Weeds and for the 2014 Herbicide Resistance Summit II.

Jill served as Secretary and President of WSSA, Western Society for Weed Science and was honored with Fellow of both Societies. She is a member of IWSS and the Society feel honored for her recognition.

WSSA Honorary Member to Jose Luis Gonzalez-Andujar and Fellow to Don Schilling and William Vencill



Dr. Jose Luis Gonzalez-Andujar (R) receiving WSSA Honorary Member Award from Dr. Krishna Reddy during the WSSA annual meeting in San Juan, Puerto Rico (USA), 08 February 2016

Jose Luis Gonzalez-Anjujar, a senior scientists of Institute of the Sustainable Agriculture (Spanish National Research Council, CISC) with interest in Weed Ecology and Management was honored with WSSA Honorary Member Award. He is currently Head of the Department of Agroecology and former Head of the Department of Crop Protection and published moe than 200 papers and book chapters. A former President of the Spanish Weed Science Society (SEMh), Latin-American Association of Weed Science (ALAM) and Spanish Biometric Society is also a member of the International Weed Science Society and winner of national and international awards. Many congratulations Dr. **Gonzalez-Andujar** on behalf of International Weed Science Society.



Dr. William Venecill (R) receiving WSSA Fellow Award from Dr. Krishna Reddy during the WSSA annual meeting in San Juan, Puerto Rico (USA), 08 February 2016

Dr. William Venecill, a member of IWSS, is a weed scientist at the University of Georgia in the Crop and Soil Sciences Department since 1989 and his work focussed on herbicide physiology and persistence in soil and water. He has authored/co-authored 68 refereed journal articles, 150 conference

papers/abstracts and 25 technical research reports and related publications. For his teachig responsibilities (50%), he is coordinator of the Crop and Soil Sciences Department, teaches Weed Science and Herbicide Physiology courses to graduate students. He was also the editorof the 8th edition of the Herbicide Handbook published in 2002 and editor of the Weed Science. Dr. Venecill was honored with Outstanding Weed Science Reviewer award in 2008 and the 2011 D. W. Brooks Faculty Award for Excellence in Teaching. He was chosen as a University of Georgia Senior Teaching Fellow in 2012. Many congratulations to Dr. Venecill from IWSS.



Some glimpses from WSSA Annual Meeting, San Juan, Puerto Rico, February, 2016

WSSA Award pictures courtesy Dr. Joseph A Omielan, Univ. of Kentucky, USA; all other photos in the Newsletter by the Editor



2nd Global Herbicide Resistance Challenge May 14-18, 2017 in Denver, Colorado, USA



Denver, Colorado, USA

May 14-18, 2017

www.GHRC2017.org

The 1st Global Herbicide Resistance Challenge meeting was held from 18-22 February, 2013 in Perth, Australia, where more than 300 scientists from 38 countries representing industry, government, universities, and non-governmental organizations attended a very successful 'Herbicide Resistance Challenge'.

The 2nd Global Challenge expects to attract scientists and professionals in research, education, government, and industry for four days of presentations and networking on key herbicide resistance management issues.

Organizing Committee is chaired by Sandra McDonald, Mountain West Pesticide Education & Safety Training, Sandra@MountainWestPEST.com and Todd Gaines, Colorado State University, Todd.Gaines@colostate.edu is the **Scientific Program Committee chair**. The **Local Arrangements Committee is chaired by:** Scott Nissen, Colorado State University, Scott.Nissen@colostate.edu

The Scientific committee is represented by

Carol Mallory-Smith, carol.mallory-smith@oregonstate.edu

Franck Dayan, franck.dayan@colostate.edu

Hugh Beckie, hugh.beckie@agr.gc.ca

Martin Vila-Aiub, vila@ifeva.edu.ar

Ian Burke, icburke@wsu.edu

Jeffery Smith, Jeffrey.Smith@valent.com

Lena Ulber, lena.ulber@jki.bund.de

Linda Hall, linda.hall@ualberta.ca

Mithila Jugulam, mithila@ksu.edu

Patrick Tranel, tranel@illinois.edu

Roberto Busi, roberto.busi@uwa.edu.au

Roland Beffa, roland.beffa@bayer.com

Samunder Singh, sam4884@gmail.com



Drs. Carol Mallory-Smith, Roland S. Beffa, Mithila Jugulam, Todd Gaines, Sandra McDonald, Franck Dayan and Ian Burke in SPC meeting at San Juan, Puerto Rico, 10 February, 2016

The Scientific Program Committee (SPC) for the 2nd Global Herbicide Resistance Challenge was held in San Juan, Puerto Rico during the WSSA Annual Meeting on

10th February 2016 under the Chairman of Sandra McDonald and was attended by Samunder Singh, Carol Mallory-Smith, Roland Beffa, Mithila Jugulam, Todd Gaines, Franck Dayan and Ian Burke. The SPC discussed framework of the meeting events including main topics and speakers.

Plans are progressing for the 2nd Global Herbicide Resistance Challenge and by March 2016, ninety-three people have submitted "Plan to Attend" forms and 49 have volunteered to present.

The Scientific Program Committee has met and issued the call for papers in March 2016 for the following main topics:

- ❖ **Herbicide Resistance in Crop Weeds**
- ❖ **Herbicide Resistance in Non-Crop Weeds (i.e., Rangeland, Forestry, Rights-of-Way, Aquatic, Turf)**
- ❖ **Herbicide Resistance Education**
- ❖ **Herbicide Resistance Regulatory Issues**

Poster presentations will play a key role in the success of GHRC 2017. Much time will be dedicated for viewing posters so that attendees can interact and use this opportunity to share details of their work, success stories and lessons learned.

Abstracts should must be in English and are limited to a maximum of 300 words.

Abstracts will be reviewed by the GHRC Scientific Committee and will be assigned to oral paper or poster presentation sessions.

Abstracts must be submitted electronically on the GHRC 2017 submission form available at www.ghrc2017.org/papers-posters.html

Abstract submission ends on October 14, 2016.

We hope you and your colleagues will participate in this event. It is a great opportunity to interact with other scientists and professionals in research, education, government, and industry for four days of oral paper and poster presentations and networking on key herbicide resistance issues such as biochemistry, eco-physiology and evolution, extension and spanning the spectrum from genomics to management strategies.

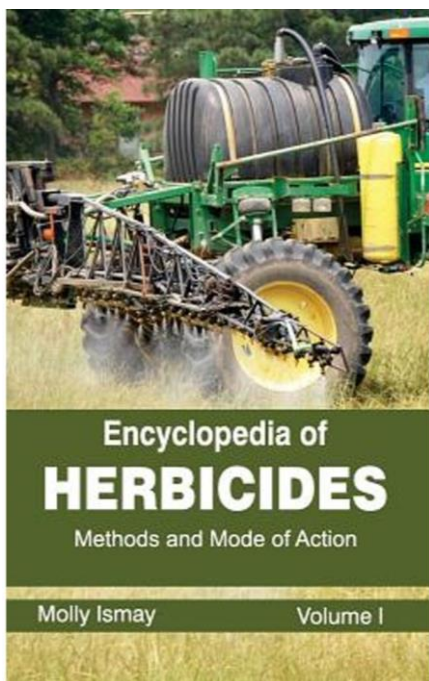
We are soliciting Papers and Posters relevant to any aspect of herbicide resistance.

Please check www.ghrc2017.org/papers-posters.html for updates. The conference overview can be found at www.ghrc2017.org .

NEW BOOKS

ENCYCLOPEDIA OF HERBICIDES: VOLUME I (METHODS AND MODE OF ACTION)

Molly Ismay (Editor), Hard Cover \$ 61.89-110



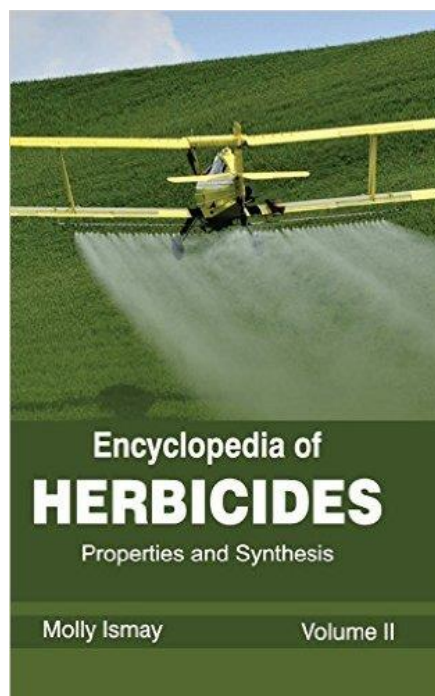
Herbicide use is an essential part of agricultural practices for optimizing crop production these days. This book broadly covers the mechanisms of herbicidal action, mode of action of certain herbicides on controlling diseases, weed expansion and production, and growth and progress of field crops. This compilation is well elaborated and summarized with topics like molecular mechanism of action, immunosensors, community response, utilization of herbicides in biotech culture, weed resistance, herbicides risk and herbicides persistence. The studies in this book reflect that practice with one crop or problem at times can be suitable to a seemingly different situation in a different crop often till an unexpected extent. The topics covered in this book will appeal to readers concerned with fields related to herbicides and pesticides and the content will be of great interest to them in their future prospects



Encyclopedia of Herbicides: Volume II (Properties and Synthesis)

Molly Ismay (Editor), \$81.34, 110.00, Jan 3, 2015

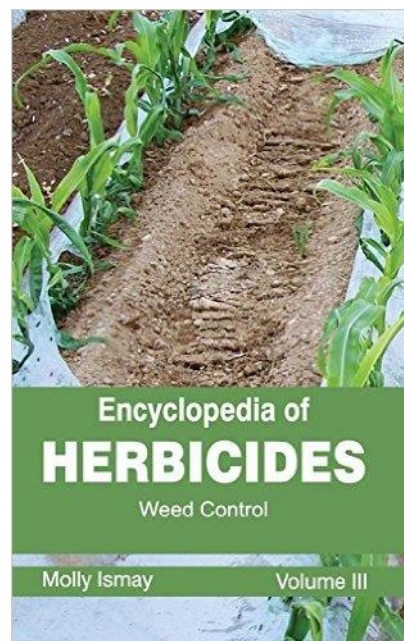
This book covers topics of synthesis and various properties of herbicides in an in-depth manner. It outlines the detailed studies of various synthetic pathways of specific herbicides and the physical and chemical features of other synthesized herbicides. The objective of this book is to showcase several characteristics and features of herbicides, the physical and chemical properties of specific types of herbicides, and their effects on physical and chemical features of soil and micro-flora. In addition, an assessment of the extent of contamination in soils as well as crops by herbicides has been elaborated along with a research on the performance and photochemistry of herbicides and the impact of excess herbicides in soils and field crops.



Encyclopedia of Herbicides: Volume III (Weed Control)

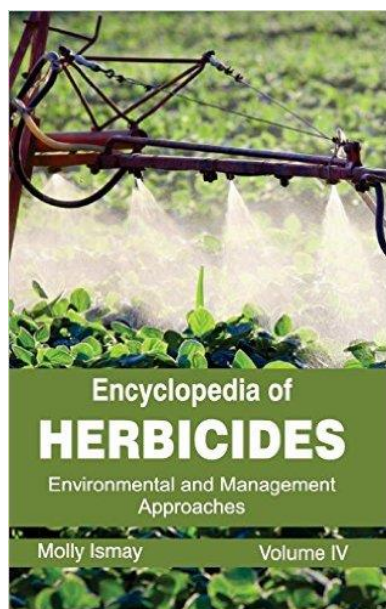
Molly Ismay (Editor), Hard Cover \$67.27-120

This book covers herbicidal control of weeds in an in-depth manner. It discusses numerous techniques used by herbicides for controlling a particular weed population. The objective of this book is to showcase several characteristics and features of herbicides, the physical and chemical properties of specific types of herbicides, and their effects on physical and chemical features of soil and micro-flora. In addition, an assessment of the extent of contamination in soils as well as crops by herbicides has been elaborated along with a research on the performance and photochemistry of herbicides and the impact of excess herbicides in soils and field crops.



Encyclopedia of Herbicides: Volume IV (Environmental and Management Approaches)

Molly Ismay (Editor), Hard Cover \$88.66-120



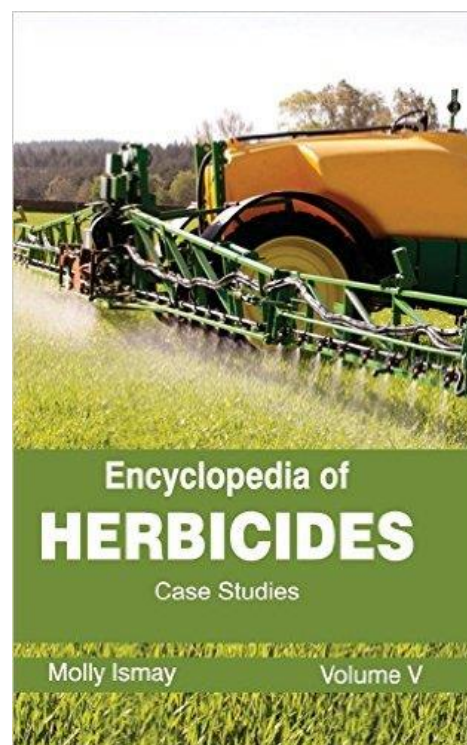
down herbicide inputs and ensuring the use of bioherbicides as natural substitutes.

This book presents an overview on the impact of weeds on crop production and the use of herbicides to curb their negative influence on crop yield. Weeds have an adverse impact on crop quality and yield. Thus, profitable farming depends on their control by well synchronized management methodologies. Chemical herbicides are of crucial significance amongst these techniques. Their progress and commercialization began around 1940's and they significantly facilitated a timely boost in crop yield and quality when it was most required. This book brings together various important topics with scientific researches and outlines some of the contemporary trends in the subject of herbicides. This comprehensive compilation also includes environmental studies on the toxicity and influence of herbicides on natural populations, techniques to cut down herbicide inputs and ensuring the use of bioherbicides as natural

Encyclopedia of Herbicides: Volume V (Case Studies)

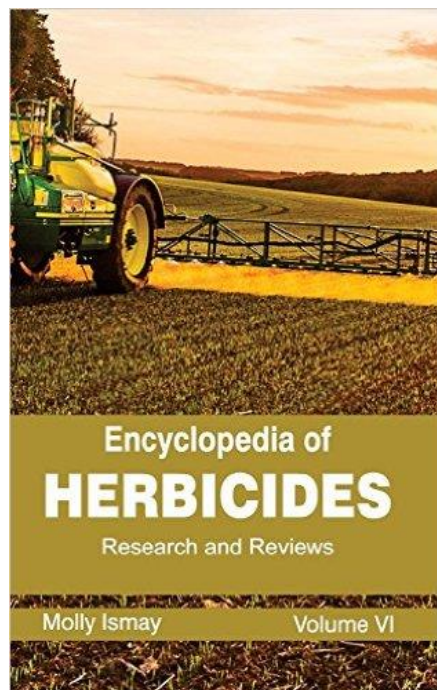
Molly Ismay (Editor), Hard Cover \$80

Both in agricultural and non-crop settings, herbicides have found utility in weed management strategies universally. However, applications and methodologies have been continually undergoing advancements. The aim of this book is to facilitate a better understanding of perennially evolving weed compositions while maintaining the effectiveness of current options. This book, therefore, provides detailed data about prevalent trends in the utilization of herbicides and management of weed in various land and water settings along with a study of cases of weed control in specific situations.



ENCYCLOPEDIA OF HERBICIDES: VOLUME VI (RESEARCH AND REVIEWS)

Molly Ismay (Editor), Hard Cover \$ 88.66-120

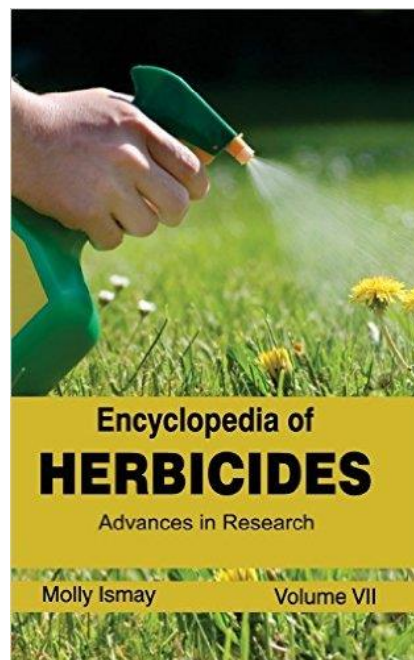


The researches and case studies detailed in this book provide a great deal of information concerning herbicide use in a number of settings. Both in agricultural and non-crop settings, herbicides have found utility in weed management strategies universally. However, applications and methodologies have been continually undergoing advancements. The aim of this book is to facilitate a better understanding of perennially evolving weed compositions while maintaining the effectiveness of current options. This book, therefore, provides detailed research review on the prevalent trends in the utilization of herbicides, toxicity of herbicides and its impact on aquatic, soil biota and human health.

ENCYCLOPEDIA OF HERBICIDES: VOLUME VII (ADVANCES IN RESEARCH)

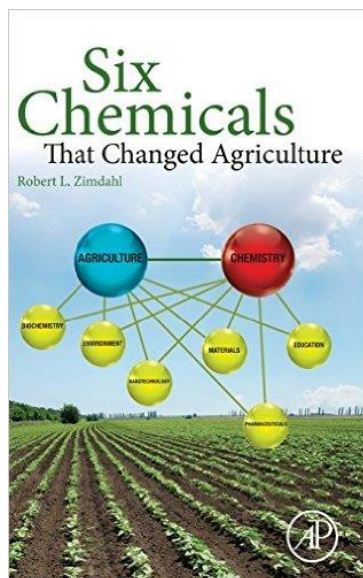
Molly Ismay (Editor) \$75

In an effort to eradicate the growing concerns posed by weeds in agricultural output, this book provides readers with an insight on herbicide use. Among the various pesticides used globally for control of weed and other undesirable plants in agricultural and related environments, herbicides are one of the most extensively used. Intense research is being continuously carried out in this field because of its excellent capability to control weed, while minimizing adverse effects on the ecological systems. Currently, a broad spectrum of research work is being carried out to focus on better use of herbicides while monitoring their impact on the environment. Even in medicine, herbicide has found extensive applications. In this book, experts involved in study and research of pesticides have collaborated to document and compile a multitude of topics pertaining to herbicide research.



Six Chemicals That Changed Agriculture

Robert L Zimdahl (Author), Academic Press, 1 edition (August 14, 2015), Hardcover: 216 pages



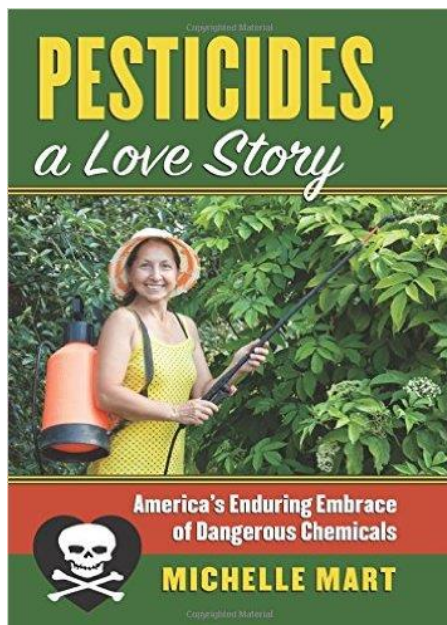
Six Chemicals That Changed Agriculture is a scientific look at how the chemicals used in today's food production were developed, evaluated, and came to be in wide-spread use. From fertilizers to pest management, antibiotics to DNA, chemicals have transformed the way our food is grown, protected, and processed.

Agriculture is the world's most important environment interaction, the essential human activity, and an increasingly controversial activity because of its use and presumed misuse of chemistry. The major characteristics of US agriculture for at least the last six decades have been rising productivity, declining number of mid-size farms, increasing farm size, an increasing percentage of farm production on fewer, large farms, increasing dependence of chemical technology and more developmental research being done by the agricultural chemical industry rather than by independent land-grant universities. Another equally important feature of modern agriculture is wide-spread suspicion of its technology by the public. The book will recount examples of this suspicion related to specific chemicals and present the essence of the suspicion and its results.

- Offers an historical analysis of the discovery and development some aspects of the chemistry of modern agriculture
- Addresses the advantages, disadvantages, desirable and undesirable results of the use of each of the chosen chemicals and compares and contrasts the real and frequently assumed problems of their use
- Provides valuable insights into the history and application of these focused chemicals, enabling readers to apply the lessons to new agricultural chemical developments

Pesticides, A Love Story: America's Enduring Embrace of Dangerous Chemicals (Cultureamerica)

Michelle Mart (Author) **Hardcover \$34.95**, Kindle \$24.69, October 6, 2015

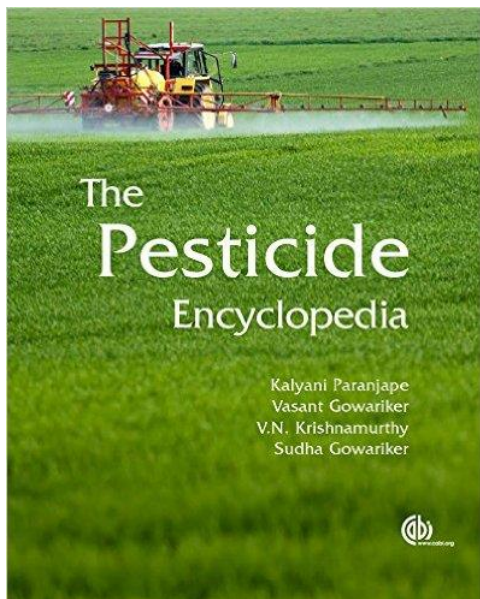


"Presto! No More Pests!" proclaimed a 1955 article introducing two new pesticides, "miracle-workers for the housewife and back-yard farmer." Easy to use, effective, and safe: who *wouldn't* love synthetic pesticides? Apparently most Americans did—and apparently still do. Why—in the face of dire warnings, rising expense, and declining effectiveness—do we cling to our chemicals? Michelle Mart wondered. Her book, a cultural history of pesticide use in postwar America, offers an answer.

America's embrace of synthetic pesticides began when they burst on the scene during World War II and has held steady into the 21st century—for example, more than 90% of soybeans grown in the US in 2008 is Roundup Ready GMOs, dependent upon generous use of the herbicide glyphosate to control weeds. Mart investigates the attraction of pesticides, with their up-to-the-minute promise of modernity, sophisticated technology, and increased productivity—in short, their appeal to human dreams of controlling nature. She also considers how they reinforced Cold War assumptions of Western economic and material superiority. Though the publication of Rachel Carson's *Silent Spring* and the rise of environmentalism might have marked a turning point in Americans' faith in pesticides, statistics tell a different story. *Pesticides, a Love Story* recounts the campaign against DDT that famously ensued; but the book also shows where our notions of *Silent Spring's* revolutionary impact falter—where, in spite of a ban on DDT, farm use of pesticides in the United States more than doubled in the thirty years after the book was published. As a cultural survey of popular and political attitudes toward pesticides, *Pesticides, a Love Story* tries to make sense of this seeming paradox. At heart, it is an exploration of the story we tell ourselves about the costs and benefits of pesticides—and how corporations, government officials, ordinary citizens, and the press shape that story to reflect our ideals, interests, and emotions.

THE PESTICIDE ENCYCLOPEDIA

K. Paranjape (Author), V. Gowariker (Author), V.N. Krishnamurthy (Author), S. Gowariker (Author), CABI Hardcover \$370.00, Kindle \$157.71



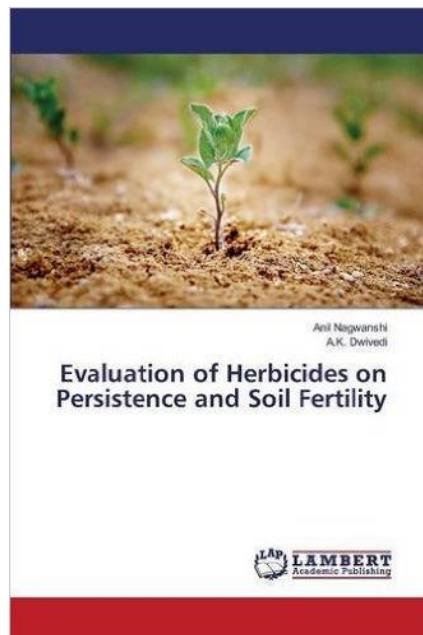
In today's world, food security is an important issue. Food shortages push prices up, impacting upon the health and well-being of hundreds of millions of rural poor across the globe. One way to increase food security is to decrease the amount of yield lost to pests. *The Pesticide Encyclopedia* provides a comprehensive overview of the fight against pests, covering chemical pesticides, biocontrol agents and biopesticides. It also covers interrelated topics such as pesticide toxicity, legislation and regulation, handling, storage and safety aspects, IPM techniques, resistance management, interaction of pesticides with soil and the environment.

An important reference for policy makers, advisers and students and researchers of crop science, this book also includes useful notes on commonly known plant diseases and pests.

EVALUATION OF HERBICIDES ON PERSISTENCE AND SOIL FERTILITY

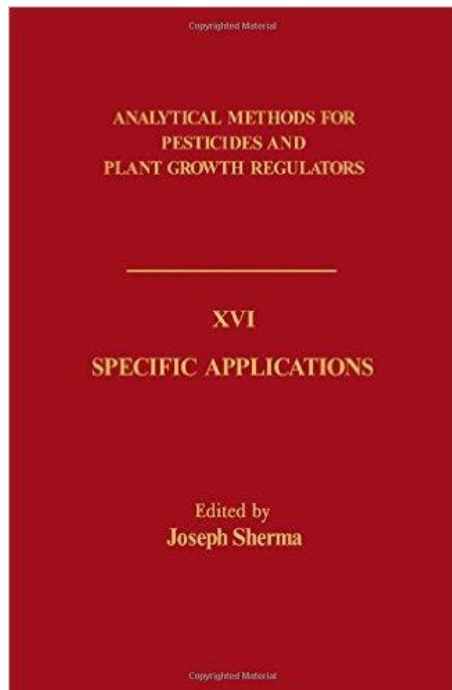
ANIL NAGWANSHI (AUTHOR), A.K. DWIVEDI (AUTHOR),
JANUARY 13, 2016, PAPERBACK \$63.001, LAMBERT
ACADEMIC PUBLISHING

As herbicides play an important role in agriculture, their use in agricultural crops is increasing throughout the globe. Optimum temperature, moisture and organic matter in soil provide congenial environment for the break down or retention of any pesticide added in the soil. The length of time a herbicide remains active in soil is called "soil persistence," or "soil residual life". The persistence of herbicide in the soil is determined by the degree of its adsorption, the mobilization and the degradation. This book is written with the objective to Evaluate effect of pretilachlor, penoxsulam & pyrazosulfuron herbicides on persistence and yield of paddy grown on a Vertisol. This book consist the following chapters-Abstract, Introduction, Review of Literature, Materials and Methods, Results, Discussion, Summery and Conclusion and References



SPECIFIC APPLICATIONS: ANALYTICAL METHODS FOR PESTICIDES AND PLANT GROWTH REGULATORS, VOL. 16

JOSEPH SHERMA (EDITOR), KINDLE \$58.36, HARD COVER \$ 72.95



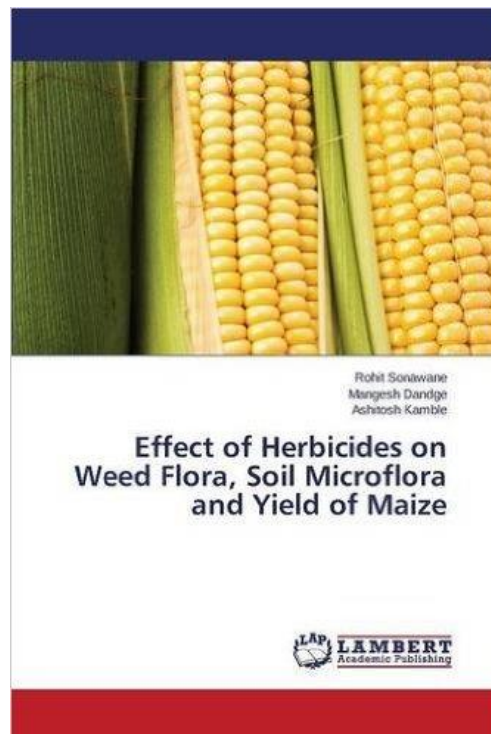
Analytical Methods for Pesticides and Plant Growth Regulators, Volume XVI: Specific Applications presents analytical methodology for insecticides (ethoprop, fenoxycarb, fenvalerate) and five herbicides (chlorimuron ethyl, chlorsulfuron, glyphosate, metsulfuron methyl, sulfometuron methyl). The book discusses the determination of two important pesticide classes, anticoagulant rodenticides and fumigants, and the determination of other pyrethroid. Toxicologists and people involved in pesticide analysis will find the text invaluable.



EFFECT OF HERBICIDES ON WEED FLORA, SOIL MICROFLORA AND YIELD OF MAIZE

Rohit Sonawane (Author), Mangesh Dandge (Author), Ashitosh Kamble Author), Paperback \$55.002 Nov. 19, 2015

Weeds are associated with crops since time and create acute problem in rainy season crop. The yield of maize under Indian condition may be attributed by number of factors. Among harmful effect on the growing plants and interference with land use, weed rank as prime enemies in crop production. Weed characterized by a fast growing rate in their seeding stage become a potential source of competition especially for soil nutrients. They interfere with efficiency of fertilizer utilization by crop plants because a sizable portion of the fertilizer added to the soil is used by weed. In the near future, agriculture labour will become scarce and expensive. In this context, herbicides will have an important role to play in Indian agriculture as they are substitute for human labour. The present investigation was therefore planned to find out efficient herbicide technology for weed control in rain-fed maize and also to study the different weed flora present in maize crop and effect of herbicides on soil microflora.



OTHER MAJOR UPCOMING EVENTS

2016

- June 13-17, 2016 11th International Symposium on Adjuvants for Agrochemicals, Monterey, California, USA
<http://events.isaa-online.org>; <http://www.isaa2016.org>
- June 19-25, 2016 7th International Weed Science Congress, Clarion Congress Hotel Prague, Prague, Czech Republic. Contact: Dr. Josef Soukup, Tel. +420 22438 2780, E-mail: soukup@af.czu.cz, iwsc2016@guarant.cz, <http://www.iwss.info/iwsc.php>
- Aug. 22-26 XXX Brazilian Weed Science Society Congress will be held from 22-26 August 2016 at ExpoUnimed, Curitiba, PR, website: <http://www.cbcpd2016.com.br/>, Facebook: <https://www.facebook.com/CBCPD/> For more information contact: Prof. Rubem Oliveira, cbcpd.curitiba@gmail.com or Dr. Fernando Adegas fernando.adeegas@embrapa.br or Prof. Pedro Christoffoleti pjchrist@esalq.usp.br
- Sept. 4 – 8, 2016 9thInternational Conference on Integrated Fruit Production (IOBC and WPRS), Venue: Thessaloniki, Greece <http://iobc-greece2016.com/>
- Sept. 5-9, 2016 14th European Society of Agronomy Conference dealing with food, conservation and water quality, Edinburgh, UK, Contact: Oborn, Ingrid (ICRAF) (I.Oborn@cgiar.org), For more details: <http://esa14.org.uk/>
- Sept.11-15, 2016 20th Australian Weeds Conference, Perth, Western Australia For details: <http://www.20awc.org.au/>
- Sept. 14-17, 2016 NEOBIOTA 2016 – 9th International Conference on Biological Invasions. Biological Invasions: Interactions with Environmental Change, Vianden, Luxembourg <http://www.neobiota2016.org>

- Sept. 28-29, 2016 6th Meeting of the EWRS Working Group "WEEDS AND BIODIVERSITY" Riga, Latvia zane.mintale@laapc.lv /www.ewrs.org
- Oct. 4-5, 2016 The BCPC Congress 2016, Change in European Agriculture-How the Regulatory Environment Might Adapt, Brighton, UK <http://www.bcpccongress.org/>
- Nov. 10, 2016 BCPC 53rd Annual Weeds Review, Rothamsted, UK http://www.bcpc.org/event_BCPC-Weeds-Review-2016_357.html
- Nov. 10, 2016 23rd COLUMA International Conference: International Meeting on Weed Control, Dijon, France afpp@afpp.net / <http://www.afpp.net>
- Nov. 22-26, 2016 4th International Agronomy Congress, Agronomy for Sustainable Management of Natural Resources, Environment, Energy and Livelihood Security to Achieve Zero Hunger Challenge, New Delhi, India. Contact person: Dr. Y.S. Shivay, Division of Agronomy, ICAR, New Delhi 110 012, India; Tel. No: +91- 011-25842283 (Office), Fax: 091-011-25842283, Mobile: +91-9717078548; +91-9868337578; Email: iac_2016@hotmail.com; [secretary isa@hotmail.com](mailto:secretary_isa@hotmail.com); <http://www.isa-india.in/>

2017

- Jan. 23-25, 2017 Southern Weed Sci. Soc. Annual Meeting, Hyatt Regency - The Wynfrey Hotel, Birmingham, AL
- Feb. 6-9, 2017 Weed Science Society of America Annual Meeting, Tucson, Arizona, www.wssa.net
- Feb. 23-24, 2017 19th International Conference on Biodiversity, Paris, France <http://www.waset.org/conference/2017/02/paris/ICB>
- May 14-18, 2017 The 2nd Global Herbicide Resistance Challenge Conference "Challenge Accepted" will be held in Denver, Colorado, USA.

Contact: Todd Gaines, Department of Bioagricultural Sciences and Pest Management, Colorado State University, Fort Collins, CO 80523, Office: 970-491-6824 Email: todd.gaines@colostate.edu

- March 21-23, 2017 6th Conference of Association Francaise De Protection Des Plantes (AFPP) on Alternative Methods of Crop Protection will be held at Lille, France. For more details: AFPP - 42 rue Raymond Jaclard - F - 94140 ALFORTVILLE; Email: afpp@afpp.net, www.afpp.net
- March 26-28, 2017 2nd Agriculture and Climate Change Conference: Climate ready resource use-efficient crops to sustain food and nutritional security, Melia Sitges, Sitges (near Barcelona), Spain. For more details log on www.agricultureandclimatechange.com
- Sept.19-22, 2017 The 26th Asian-Pacific Weed Science Conference, Weed Science for People, Agriculture, and Nature will be held at Kyoto Research Park, Kyoto, Japan at University of Tsukuba, Japan; E-mail: Hiroshi Matsumoto hmatsu@biol.tsukuba.ac.jp, Web: <http://www.c-linkage.co.jp/apwss2017/conference.html>

2018

- Jan. 22-24, 2018 Southern Weed Sci. Soc. Annual Meeting, Hyatt Regency Atlanta, Atlanta, GA
- Jan. 25- Feb. 3, 2018 WSSA Annual Meeting, Crystal Gateway Marriott Arlington, VA.

2019

- Feb. 11-14, 2019 WSSA Annual Meeting, Sheraton New Orleans, LA.



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The IWSS Newsletter is available on the Internet at:
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Recent issues are available only after member login

The Newsletter is published twice a year to foster communication among and give information to our members and others around the globe interested in Weed Science.

Thanks to the contributors who helped with the present issue. We would love to hear activities in your areas, please contribute and share with all weed science fraternity.

Deadline for items for the next Newsletter is September 30, 2016

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TO JOIN THE IWSS

Complete the following information and send your dues to Dr. Franck Dayan, the IWSS Treasurer:

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State _____

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E-mail address: _____

Membership Form is also available at Society's website. Annual membership is from January to December.

Checks, bank drafts, or money orders in US\$ should be made payable to: International Weed Science Society For ease of payments, dues can now be paid by credit card at our webpage by following the link:

<http://www.iwss.info/membership.asp>