

Message from President

Dear Honorable Members of the ISWS

Greetings!!!.

I am happy to see the first issue (January to June, 2022,) of ISWS Newsletter. Congratulations to Dr. Pijush Kanti Mukherjee, Editor for his sincere efforts to bring it regularly since taking over the rein of the Newsletter. It envisages the information about the drone use in spraying of herbicide and mapping of weeds. The use of drone, is going to increase manifold in herbicide spraying in particular and in other use in context to weeds in general. We all should take the advantage of this new technology. Highlights about the projection of distribution of alien invasive weeds, herbicide resistant weeds in India and increasing threat of *Synconium podophyllum* in rubber plantations were also the recent information on weed science. The Newsletter also highlights the Ph.D and M.Sc theses in weed science besides list of the articles published in the 54(1) issue of Indian Journal of Weed Science. I welcome the new life members who joined the Society during January to June, 2022, which list is given in the newsletter. I request all the members of the society to contribute in your Newsletter with the innovative work done at your institute, information about the M.Sc. and Ph.D theses and awards received if any so that all the information are compiled regularly and shared with each other.



You will be happy to lean that your society has developed its own online review system for publication of research articles in Indian Journal of Weed Science. This online system is being uploaded soon on the website as pilot testing and it is hoped that it will help tremendously for fast processing of the submitted articles in IJWS and to apprise the authors on current status of the article as well.

The preparations are on full swing to organize 3rd International Weed Conference (3rd IWC) during 20-23 December, 2022 at Anand Agricultural University, Anand (Gujarat). It has been decided to offer free accommodation to students on first come first served basis besides proposing travel grant awards too many to encourage their participation in the conference. Kindly motivate the students in your university/institutions to apply for the participation and awards. There are provisions of different types of awards for the members too. All are requested to see and apply as deem fit (<https://isws.org.in/Award.aspx>). Organizers have also planned to organize a trip of the delegates to the world tallest statute "Statue of Unity". I request all the members to participate in this conference to make it a grand success.

Wish you all the best in your endeavour in weed science and all aspects of life as well.

Happy reading.


Sushil Kumar

Training programmes on “Integrated Weed Management”

Four training programmes on “Integrated Weed Management” for three days duration during January to June 2022 and one training programme especially on “Weed management on oil seed crops” on March 17, 2022 were organised by AICRP on Weed Management, B. A. College of Agriculture, Anand Agricultural University, Anand (Gujarat). Altogether, about 169 participants including farmers, farm labourers and officials attended the training. Dr D. D. Chaudhari, Agronomist and PI, AICRP on Weed Management and Dr. V. J. Patel, Professor, B. A. College of Agriculture, Anand Agricultural University, Anand (Gujarat) acted as resource person and empowered the farmers on technical know-how of IWM in different crops, time and method of application of different herbicides, safe use of herbicides, utilization of weeds etc.



Training cum awareness programme on Parthenium management

One-day training cum awareness programme on *Parthenium* management was organised at Dharmaj village of Borsad Taluka by AICRP on Weed Management of B. A. College of Agriculture, Anand Agricultural University, Anand (Gujarat) in collaboration with Dharohar Foundation and Dharmaj Seva Sahakari Mandali Dharmaj on May 21, 2022. Altogether about 65 participants including farmers, farm labourers and officials attended the training. A special interactive session on ill-effects of *Parthenium* on crop, animals and human being and its management through different methods was conducted. Later, a demonstration on different control methods of *Parthenium* was also arranged.



Honours and Awards

Hindi Pratika “*Trina Sandesh*” released by ICAR-Directorate of Weed Research; Jabalpur has been selected for award (Third Position) under “**Ganesh Shankar Vidyarthi Puraskar Yojana**” for the year 2021 by ICAR.

ICAR-Directorate of Weed Research, Jabalpur has been selected for “**Rajarshi Tandon Rajbhasha Puraskar Award**” (First Position) by ICAR for doing the maximum work in the Official Language ‘Hindi’ among the small Institutes situated in ‘A and B’ Regions for the year 2020-2021.



Dr. R.K. Malik was awarded as a ‘**Honorary member**’ by the Weed Science Society of America. The WSSA award highlights Dr. Malik’s inspiring work in tackling herbicide resistance problems, first reported in India by his team in 1993. Dr. Malik was instrumental in developing a management solution for herbicide-resistant *Phalaris minor*, a pernicious weed in wheat crops. The integrated weed management system he developed has helped to raise wheat yield significantly for farmers in the Indo-Gangetic Plains.

The award was presented virtually at the 2022 annual meeting of WSSA, held in Vancouver, Canada.

Dr. Vinod Kumar Wasnik, Senior Scientist, Division of Seed Technology, ICAR-IGFRI, Jhansi, Uttar Pradesh and ISWS Life member, has been awarded with “**Best Oral Presentation Award**” for the presentation on Influence of weed management practices on seed yield of berseem (*Trifolium alexandrinum* L.) in International Conference on “*Sustainability and Environmental Perseverance in the Era of Covid 19*” held at Amity University, Gwalior (India) on 17.02.2022.

Dr. B.D. Patel, Ex. HoD, Agronomy & PI, AICRP-Weed Management, BACA, Anand Agricultural University, Anand has been awarded **BEST EXTENSION AWARD** 2021 for outstanding Extension work for the year 2021 by Hon. Vice Chancellor of Anand Agricultural University, Dr. K. B. Kathiria and Hon. Vice Chancellor of Rastriya Raksha University, Dr. Bimal Patel in the occasion of 18th Annual Convocation held on 02.02.2022.



Dr Pijush Kanti Mukherjee, Principal Scientist, ICAR-DWR and ISWS life member has been awarded with “**Outstanding Achievement Award-2022**” in the field of Agronomy by GKV Society during the International Conference on “Recent Advances for managing soil health and crop production” held during February 18-20, 2022.



Dr. Yogita Gharde, Senior Scientist (Agril. Statistics) received **Best Worker Award of ICAR-DWR** under the scientific category on the occasion of 34th Foundation Day of ICAR-Directorate of Weed Research, Jabalpur on 22nd April, 2022.



Research highlight

Weed mapping and herbicide application through drone

P. Murali Arthanari and C. Supriya

Tamil Nadu Agricultural University, Coimbatore, Tamil Nadu

Drone is a flying device which can fly a pre-set course with the help of GPS and an autopilot coordinates. Drone stands for Dynamic Remotely Operated Navigation Equipment. Drone technology has provided the agriculture industry a high-technology makeover, with planning and strategy based on real-time data collecting and processing. Using plant protection UAV to spray the required amount of herbicide with minimum spray fluid and advent of drones for plant protection, chemical spraying might be the alternate source to apply herbicides. This technology has been effective on time and resource utilization.

Keeping this in view a field experiment was carried out at Eastern block, TNAU, Coimbatore during summer, 2020 using Maize COH(M) 8 to identify the optimum quantity of spray fluid for herbicide application through drone in irrigated maize. The study was laid out in randomized block design with three replications. The treatments comprised of herbicides with different spray fluid application through drone viz., 40L, 60L, 80L/ha and 100 L/ha with recommended dose of pre-emergence Atrazine, early post-emergence tembotrione and post-emergence 2, 4-D compared with 500L/ha by hand sprayer.

Herbicide spraying through drone

Quadcopter type of drone was used for this study. By using a remote control, the sprayer module nozzle was turned on. The spraying material (herbicide) and the controller section (used to operate the sprayer nozzle) are both contained in the spraying module. The command is sent by a remote controller that has been manually turned on. Before spraying, calibration of drone is an important step. Make sure that no obstacles near the UAV and hold the aircraft horizontally and rotate it 360 degrees along the central axis and rotate it 360 degrees around its central axis. At last recycle the battery (battery reattachment) and the drone was calibrated.



Quadcopter – Hybrid drone

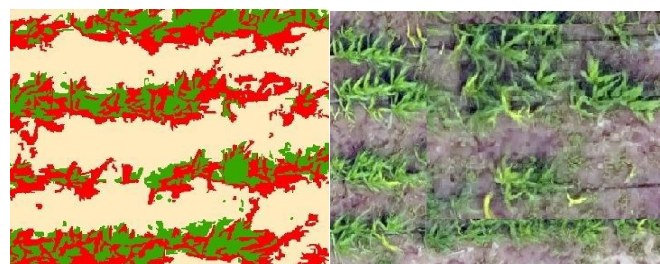


PE, EPoE and PoE application by drone

After calibration, GPS based route map was created and the way points were fixed. The drone was operated once the way point for creating boundaries for spraying was fixed. After fixing all the way points for each plot, recommended herbicide and spray fluid as per the treatment was filled in the tank. Then the pilot operated the drone as per route map and spraying was done as per the treatment. During every spraying, the droplets were collected through Water-sensitive paper (WSP) samplers. The Image viewer and Deposit Scan software was used to evaluate the spray droplets that were captured on them in the lab. Both a micro droplet analyzer and a macro droplet analyser were used in the analysis.



Parrot- ANAFI thermal drone



RGB image

Actual image captured by drone

Mapping of weed infested area through drone

Weed mapping was done by Parrot ANAFI thermal drone. Segregation of weeds from crops through RGB (Red green blue band) analysis method with maximum likelihood classification. In supervised classification, the representative sample sites were selected by using known class and training sites were developed for procuring spectral signatures or pixel values corresponding to the respective class. The classification algorithm uses the spectral signatures from these training sites to classify the whole image, with nominal overlapping or without overlapping of classes.

Red colour indicated the weed infested area, green colour indicated the cropped area as maize and the yellow colour indicated the non-cropped as soil. The input data of this supervised classification are the mean vectors. During training phase, these vectors are built along with labeled thumbnail images automatically assigned as crop or weeds. The classification accuracy is quantified using a classical metric deduced from the covariance matrix. The maximum likelihood classifier is assessed from the covariance matrix. The overall classification accuracy was 70-80%.

From the experiment conducted, it was concluded that based on droplet deposition and weed control efficiency, application of recommended dose of Atrazine (1.0 kg/ha) - Tembotrione (120 g/ha) - 2, 4-D (1.0 kg/ha) can be effectively sprayed through drones with the spray fluid of 80 litres/ha and resulted in higher weed control efficiency and increased productivity of irrigated maize.

Syngonium – A new invasive alien weed in rubber plantations in Kerala

Dr. P. Prameela and Dr. Savitha Antony
AICRP on Weed Control, KAU, Thrissur

Syngonium podophyllum is a tropical ornamental plant grown for its attractive lush green foliage. It belongs to the family Araceae and is commonly known as, Arrow head plant, five fingers, American evergreen and goose foot plant. It is native to Mexico, Central America and parts of South America. This fast-growing vine is listed as an invasive weed in tropical and subtropical locations. *Syngonium* is considered as a potential invasive and sleeper weed (localized infestation) by the World Wildlife Federation. It is known to displace native plants and flourish well in shade condition. It spreads from the ground cover to the canopy, engulfing mature trees and shading out native flora in the understory. The arrow-shaped leaves are alternate, simple, entire, and sagittate at juvenile stage, while mature leaves are compound, dark green and segmented. Leaflets are generally dark green above and pale green below and all plant parts contain calcium oxalate and hence the milky sap causes itching sensation on skin. Vegetative propagation is common and it can regenerate even from a single node cutting. Flowering is not common and it rarely produces viable seeds in its native range. It can climb up if some physical support is available and with the help of extensive aerial root system it strongly adhere to tree trunks making it extremely difficult to remove weed.

Widespread *Syngonium* infestation in few rubber plantations was reported from Ernakulam District by the AICRP on Weed Management, KAU, Thrissur during weed surveillance surveys in 2021. *Syngonium* has formed a dense groundcover in rubber plantations as well as covered the trunks of the rubber trees hindering tapping operations. The weed prefers shade condition and hence quickly spread once it gets established.

As hand pulling or by mechanical methods are not practically feasible in plantations with severe infestation, few herbicides were tried for its management. Herbicide 2, 4 D was found effective in controlling *Syngonium*. At early stages of infestation, physical removal and disposal of plant parts in deep pits or trenches can be advocated. Creating awareness among the people about this invasive weed and ensuring community participation in eradication programmes with the intervention of possible physical and chemical means need to be taken up to restrict further spread of this weed.



Projection on geographical distribution of alien invasive weeds

Yogita Gharde, Sushil Kumar, R.P. Dubey and P.K. Singh
ICAR-Directorate of Weeds Research, Jabalpur

Biological invasion by alien species is considered as one of the major factors negatively affecting the biodiversity and ecosystem. Its ill impacts on different ecological

processes, human health and economy, agricultural systems as well as on native biodiversity and ecosystem are recognized as one of the major factors affecting the global environmental changes. Furthermore, rapid growth in global market and transport have already eased the introduction of alien species into non-native range.

In addition to this, climate change is a major driver forcing species to shift their habitat and to accommodate new or modified environmental conditions which may sometimes lead to species extinction too. Considering the changes, it is important to understand the effect of climate change on geographical distribution of these species. Understanding the potential distribution of a plant invader allows invasive species managers in at-risk areas to make informed decisions when allocating resources towards prevention, planning for future management activities, prioritizing management to most at-risk areas of negative impacts, or to include the species in different surveillance programs. However, some studies revealed that a change in environmental conditions in different localities leads to either a reduction or expansion in suitable habitats of the species.

Presently, species distribution modelling (SDM) tools have become the most useful method in interpreting the effect of future climate change on distribution of alien invasive species. They are scientifically proven tools for assessing and predicting the impacts of climate change on these species. However, selecting the most suitable modelling algorithm and relevant datasets are the major challenges in SDM. Species distribution models such as Maxent, GARP and Biomapper are widely used to predict the potential and future distribution of alien invasive species. However, this approach may sometimes be misleading as frequent niche shift by many such species have been reported by many researchers. This puts a great challenge to the conventional approach of using native occurrence data to predict potential area where a species can exist. Hence, it is important to decide the type of the data used whether from native range, invaded range or from entire range (native + invaded) before applying any method for predicting the future distribution of any invasive species.

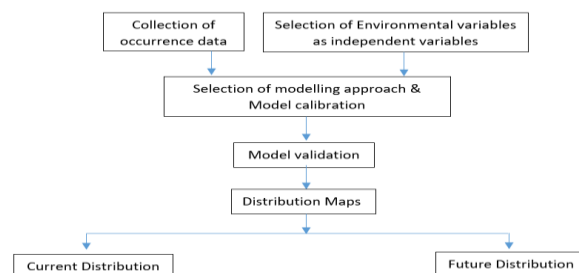


Figure. Flow diagram of methodology used for species distribution modelling

Herbicide resistant weeds and their management

D.V. Pawar, D. Sreekanth and Ashish Marathe
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Herbicide resistance in weeds

The ability of some weed biotypes within a particular weed population to withstand an herbicide application that would otherwise successfully reduce the weed population is known as herbicide resistance. This ability is naturally occurring and inheritable. There are major economic and environmental effects when herbicide options are constrained. Fortunately, there are steps those can be taken to manage the evolution of herbicide resistant weeds. In the current situation, there are 267 species and 513 examples of weeds that have developed herbicide resistance globally (154 dicots and 113 monocots). 21 of the 31 known herbicide sites as well as 165 different herbicides have developed resistance in weeds (<https://www.weedscience.org>).

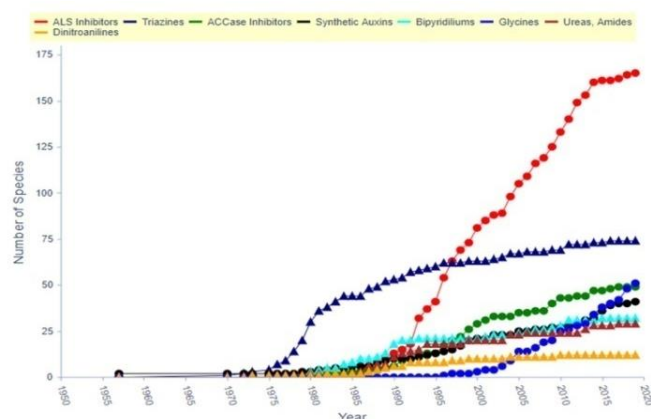


Figure 1. Chronological increase in resistant weeds worldwide (<https://www.weedscience.org>)

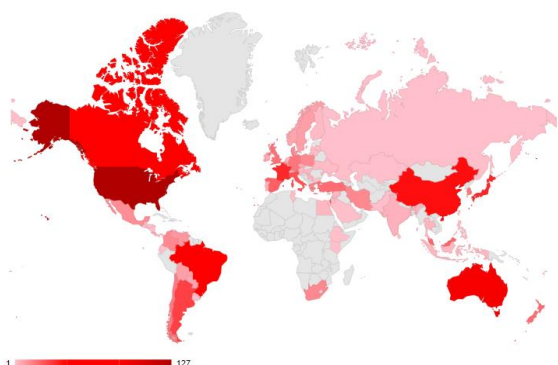


Figure 2. Number of unique herbicide resistance cases globally (<https://www.weedscience.org>)

Evolution and dominance of herbicide resistant weed biotypes

Development of herbicide tolerance in weeds is used as an exemplar of acclimation brought on by substantial

consequence mutations in the evolutionary literature. The majority of the current weed science research supports this form of adaptation. Also, herbicide tolerance is frequently shown to be regulated by a solitary, dominant or semi-dominant nuclear gene. A small number of plants in any weed population are naturally resistant to a given herbicide. A repeated application of this herbicide alone will thus lead to a selection of these plants. As a result of several such “selections” over the period the resistant biotype can dominate the complete weed population



Development and dominance of herbicide resistant weed population

Management strategies for avoiding development of herbicide resistance in weeds:

- Apply integrated weed management practices that include both chemical as well as non-chemical weed control practices like cultural, biological and mechanical measures in context with the cropping system.
- Use herbicide mixtures, sequences, or rotations with overlapping weed spectra and multiple, distinct sites-of-action.
- Use full-recommended herbicide doses and the proper application timing.
- Survey the fields after application of herbicides to ensure control has been achieved.
- Prevent weeds that escape control from producing seed by hand weeding.
- Clean agricultural equipment operational between different fields.
- Start with fields free of weeds and control weeds early by using tillage in combination with a pre-emergence herbicide.
- Use cultural and mechanical practices such as cover crops, intercropping, crop rotation, use competitive cultivars, seeding time, and tillage as suitable and as per requirement.
- Follow good agricultural practices that have positive effects on crop competitiveness and yield by negatively affecting weed flora and weed growth and development.

Stale seedbed technique: A way for weed management in berseem seed production

Vinod Kumar Wasnik, H. M. Halli, Srinivasan R, A. Kumar
and Mahesha H. S.

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In India during the winter season berseem (*Trifolium alexandrinum* L.) is the major fodder crops grown in the irrigated areas for the fodder production. The *Anagallis arvensis*, *Chenopodium album*, *Cichorium intybus*, *Coronopus didymus*, *Cyperus rotundus*, *Eclipta alba*, *Medicago denticulata*, *Melilotus albus*, *Melilotus indicus*, *Parthenium hysterophorus*, *Phalaris minor*, *Physalis minima*, *Poa annua*, *Rumex dentatus*, *Sonchus asper*, *Sonchus oleraceus*, *Spergula arvensis* and *Trifolium resupinatum* etc. composite weed flora brings down 23-28% green fodder and 38-44% seed yield of berseem. Post-emergence application (20 days after sowing) of imazethapyr provides broad spectrum selective weed control in berseem. The repeated use of a single herbicide leads to development of resistance in weeds. Imazethapyr herbicide is effective against *Anagallis arvensis*, *Chenopodium album*, *Coronopus didymus*, *Eclipta alba*, *Melilotus albus*, *Melilotus indicus*, *Parthenium hysterophorus*, *Phalaris minor*, *Physalis minima*, *Poa annua*, *Rumex dentatus*, *Sonchus asper*, *Sonchus oleraceus*, and *Spergula arvensis* weeds. Although less effective against *Cichorium intybus*, *Cyperus rotundus* and ineffective against *Medicago denticulata* and *Trifolium resupinatum* weeds. Under such circumstances stale seedbed technique provides broad spectrum weed control where selective herbicides are not available for a particular crop. Keeping above facts in mind, mechanical and chemical stale seedbed practices were adopted in berseem seed production for the management of weeds. In mechanical stale seedbed the field was given light irrigation to stimulate the emergence of weeds and previous year fallen berseem seeds. Twenty days after the emerged weeds and seedling emerged from previous year fallen berseem seed were killed by harrowing and sowing of berseem was done. In case of chemical stale seedbed, treatment wise the pre-emergence herbicides pendimethalin + imazethapyr 0.75 kg/ha was applied in the field 3 days after irrigation and the berseem sowing was done 20 days after the herbicide application. While in the other treatment the herbicides paraquat 0.5 kg/ha and glyphosate 1.0 kg/ha were sprayed in the field 20 days after emergence of weeds and previous year fallen berseem seeds. The sowing of berseem was done 20 days after the application of glyphosate and paraquat. Among all the stale seedbed treatment pre-emergence application of pendimethalin + imazethapyr 0.75 kg/ha recorded the significantly lowest weed density (7.03 and 26.00 /m²) weed dry weight (5.03 and 8.81 g/m²) of weeds and

highest weed control efficiency (79.92 and 74.01%) at the sowing time (before the preparation of field for sowing of berseem/20 days after pre-emergence herbicide application) and 20 days after sowing of berseem. Better crop growth due to control of weeds by the application of herbicide pendimethalin + imazethapyr also gave 46.58% higher seed yield over weedy check, 30.03% over mechanical stale seedbed, 19.49% over paraquat and 12.92% over glyphosate application.



Weedy check field 55 days after sowing of berseem



Mechanical stale seedbed field 55 days after sowing of berseem



Pendimethalin + imazethapyr 0.75 kg/ha applied field 55 days after sowing of berseem

Book published: “Weed Management”. Bhavya Books, New Delhi

SS Rana and Sachin Kumar

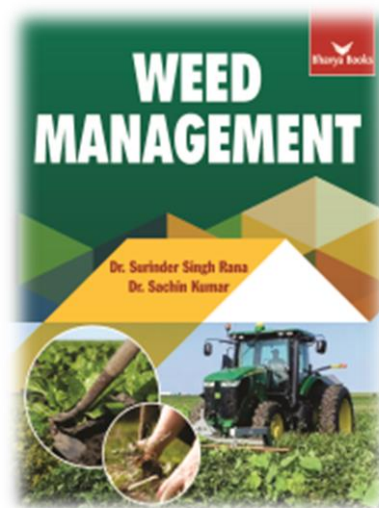
(https://bhavyabooks.com/search_results.aspx?q=weed+management)

ISBN: 978-93-83992-56-0

About the book

This textbook on weed management is written to meet out the requirement of undergraduate level weed science teaching. The book is a precise account of principles, concepts and methods of weed management presented in a simple language suitable for B.Sc. agriculture students. The book is dealing with precise introduction, characteristics and harmful and beneficial effects of weeds on ecosystem, classification, biology and ecology - reproduction and dissemination of weeds, crop weed competition, scope and future prospects of weed management; principles, concepts and methods of weed control herbicide classification, concept of adjuvant, surfactant, herbicide formulation and their use; introduction to mode of action and selectivity of herbicides; persistence of herbicide in soil and plants; application methods and equipments; allelopathy; bio-herbicides; concept of herbicide mixture; herbicide

compatibility with nutrients and their application; integration of herbicides with non-chemical methods of weed management; herbicide resistance and its management; weed flora shifts in cropping systems; weed management in field crops; vegetables and plantation crops, parasitic and aquatic weeds and their management; special and problematic weeds and their management in cropped and non-cropped situations and role of GM crops in weed management.



Ph.D. and M.Sc. theses in Weed Science

Sonaka Ghosh has successfully completed *Degree of Doctor of Philosophy* in the thesis entitled “Nitrogen management and weed dynamics in a conservation agriculture-based maize-wheat-mungbean system” under the chairmanship of Dr. T.K. Das, Professor & Principal Scientist, Division of Agronomy, ICAR-Indian Agricultural Research Institute, New Delhi, India.

Lakshmi Sekhar has successfully completed *Degree of Doctor of Philosophy* in the thesis entitled “Germination ecology and management of chinese sprangletop (*Leptochloa chinensis* (L.) Nees) in wet seeded rice” under the chairmanship of Prof. (Dr.) Ameena M., Kerala Agricultural University, College of Agriculture, Vellayani, Trivandrum, India.

Sathe Rajiv Karbhari has successfully completed *Degree of Doctor of Philosophy* in the thesis entitled “Development of organic farming package for brinjal (*Solanum melongena* L.)” under the chairmanship of Dr. B.S. Raskar, Professor of Agronomy, Mahatma Phule Krishi Vidyapeeth, Rahuri, Maharashtra, India

Poornima Sahu has successfully completed *Degree of Master of Science* in the thesis entitled “Influence of weed management practices on seed yield of berseem (*Trifolium alexandrinum* L.)” under the chairmanship of Dr. Vinod Kumar Wasnik, Senior Scientist, ICAR-Indian Grassland and Fodder Research Institute, Jhansi, Uttar Pradesh.

Recent published articles in Indian Journal of Weed Science

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Welcome of new life members in Indian Society of Weed Science (Jan-June, 2021)

- | | |
|---|---|
| 1. Dr. Anjan Krishna Sarmah (LM-1396)
Assam Agricultural University, Jorhat, Assam | 9. Mr. Hirabhai Chaudhary (LM-1404)
S.D. Agricultural University, S.K. Nagar Dantiwada |
| 2. Dr. Prashant Pawar (LM-1397)
Mahatma Phule Krishi Vidyapeeth, Rahuri, Maharashtra | 10. Mr. Nilutpal Saikia (LM-1405)
Banaras Hindu University, Varanasi, Uttar Pradesh |
| 3. Dr. Alagesan Arumugam (LM-1398)
Tamil Nadu Agricultural University, Tiruchirappalli, Tamil Nadu | 11. Dr. Priyanka Suryavanshi (LM-1406)
CSIR-Central Institute of Medicinal and Aromatic Plants, Lucknow |
| 4. Dr. Arjun Lal Bijarnia (LM-1399)
ARS, Keshwana, Jalore, Rajasthan | 12. Dr. Ajay Patel (LM-1407)
Navsari Agricultural University, Navsari, Gujarat |
| 5. Miss. Munny Chinyo (LM-1400)
G.B.P. University of Agriculture & Technology, Pantnagar | 13. Dr. Vinay Patel (LM-1408)
Navsari Agricultural University, Navsari, Gujarat |
| 6. Dr. Satya Prakash Kumar (LM-1401)
ICAR-Central Institute of Agricultural Engineering, Bhopal, MP | 14. Dr. S.N. Malleswari Sadhineni (LM-1409)
Acharya NG Ranga Agricultural University, Anantapur, AP |
| 7. Mr. Sushil Kumar (LM-1402)
CCS Haryana Agricultural University, Hisar, Haryana | 15. Dr. Jeyasrinivas Ramasamy (LM-1410)
Tamil Nadu Agricultural University, Coimbatore, Tamil Nadu |
| 8. Mr. Mayurkumar P. Ramani (LM-1403)
Anand Agricultural University, Anand, Gujarat | |

3rd International Weed Conference

“Weed problems and management challenges: Future perspectives”



20-23 December, 2022

Venue: Anand Agricultural University,
Anand, Gujarat, INDIA



Organizers



Indian Society of Weed Science | Anand Agricultural University
ICAR - Directorate of Weed Research | Indian Council of Agricultural Research

Contact for any inquiry: iswsjbpp@gmail.com

Important Dates

Abstracts submission deadline	30 September, 2022
Abstracts review	1-15 October, 2022
Abstracts status notification	16-30 October, 2022
Plenary and lead papers submission deadline	30 October, 2022
Early bird registration deadline	30 October, 2022

Sub-themes:

- Weed biology and ecology
- Integrated weed management in major crops and cropping systems
- Integrated weed management in non-crop areas and aquatic environment
- Herbicide resistance
- Weeds under global climate change
- New ways to deal with weeds, i.e. new technologies
- Weed utilization
- Weeds and biodiversity
- Herbicides and environment
- Weed science education

Renowned weed scientists from India and abroad have been identified for keynote, plenary lectures and lead presentations to address the current status of research in the respective technical sessions.

Registration

Register now to save

We are pleased to offer a special discounted rate for those who register early. This offer is only available until the specified period.

Category	Before 30 October 2022	1 to 30 November 2022	Spot Registration
Indian participants			
ISWS members	₹ 7000	₹ 7500	₹ 8000
Retired ISWS members	₹ 3000	₹ 3500	₹ 4000
Non-ISWS members	₹ 8000	₹ 8500	₹ 9000
Students (ISWS members)	₹ 3000	₹ 3500	₹ 4000
Students (non-ISWS members)	₹ 4000	₹ 4500	₹ 5000
Accompanying person	₹ 3500	₹ 3500	₹ 3500
Industry representatives	₹ 15000	₹ 17500	₹ 20000
Overseas participants			
ISWS members	US\$ 300	US\$ 325	US\$ 350
Non-ISWS members	US\$ 400	US\$ 425	US\$ 450
Overseas students	US\$ 150	US\$ 175	US\$ 200
SAARC countries	US\$ 150	US\$ 175	US\$ 200
Accompanying person	US\$ 150	US\$ 150	US\$ 150
Industry representatives	US\$ 400	US\$ 450	US\$ 500

The registration fee includes the conference kit, access to conference sessions, tea / snacks during session breaks, working lunch and transport from the guest house/hotel to the venue. It does not include accommodation. Registration kit will not be provided to accompanying person.

Indian delegates can pay their registration fees online through CC Avenue or through Demand Draft / Pay Order in favour of the Secretary, Indian Society of Weed Science, payable at Jabalpur, India. The foreign delegates are requested to submit the registration fees through PayPal or CC Avenue. Links for payment of registration fees are available on the website.

ISWS Awards (2020 & 2021)

Following awards have been instituted by the ISWS, for which, applications are invited from the life members:

ISWS Life Time Achievement Award: This award will be given in recognition of the work done by a retired scientist in the field of weed science during his/her life time.

ISWS Gold Medal: This recognition is meant for the ISWS Fellows and Recognition award winners who made outstanding contributions and have achieved professional excellence in weed science.

ISWS Fellow: This recognition is for the life members who made significant contributions in the field of weed science.

ISWS Dr. T.V. Muniyappa Young Scientist Award: This award is given to young scientist (below 35 years) in the field of weed science. Cash award of ₹ 10,000/- and certificate are given to the awardee.

ISWS Prof. V.S. Rama Das Young Scientist Award: This award is given to young scientist (below 35 years) in the field of weed science. Cash award of ₹ 10,000/- and certificate are given to the awardee.

ISWS Shree A. Rama Rao Best Ph.D. Thesis Award: This award is for excellent research work done for Ph.D. thesis in the field of weed science. Cash award of ₹ 10000/- and certificate will be given to the awardee.

ISWS Mrs. A. Anasuya Best Ph.D. Thesis Award (Women): This award is for excellent research work done by women for Ph.D. thesis in the field of weed science. Cash award of ₹ 10000/- and certificate will be given to the awardee.

ISWS Student Travel Award: Waiving of registration fee and actual train fare limited to 3rd AC will be given to deserving students pursuing Ph.D. in weed science.

ISWS Best Book Award: For authored or edited book published in weed science.

ISWS Prof. B.S. Chauhan Best Paper Award: For the best paper published in Indian Journal of Weed Science during 2020 and 2021, Cash award of ₹ 10,000/- and certificate are given to the awardees (2 awards).

ISWS Best Poster Award: For the best poster presented during the current International Conference (6 awards).

ISWS Dr. Mahesh K. Upadhyaya Lecture Award: This award is given to the scientist by ISWS working in the field of non-chemical approaches. The award envisage ₹ 10,000/- and memento with the certificate.

(For details of the awards, visit the website: isws.org.in. Last date for the receipt of applications is 15th September 2022)

- The Weed Management Society of South Australia (WMSSA), on behalf of The Council of Australasian Weed Societies (CAWS), will be hosting the 22nd Australasian Weeds Conference (22AWC) at Adelaide Oval during September 25-29, 2022. (<https://wmssa.org.au/22awc/>)
- Bioherbicides 2022: Overcoming the barriers to adoption of microbial bioherbicides to be held at Bari, Italy during September 25-29, September (<https://bioherbicides2021.wordpress.com/>)
- Due to the recent **spurt** in COVID-19 case, the International Weed Science Society (IWSC) earlier decided to postpone the 8th International Weed Science Congress (IWSC 2020) with the theme "Weed Science in a Climate of Change" to December 4-10, 2022. IWSC 2020 will be held at Marriott Marquis Queen's Park, Bangkok, Thailand. (<https://www.iwsc2020.com/>). Information has been received from the organizer of the 8th International Weed Science Congress in Bangkok (December 4-9, 2022) that the last date for submission of abstracts has been extended to July 31, 2022. You can go here to submit the abstract (<https://www.iwsc2020.com/abstract-submission.html>).
- ICPPWS 2022: 16. International Conference on Plant Physiology and Weed Science will be held during November 29-30, 2022 in Bangkok, Thailand (<https://waset.org/plant-physiology-and-weed-science-conference-in-november-2022-in-bangkok>).
- International Invasive Weed Conference will be held on 24th November, 2022 in the Slate, Warwick Conferences, University of Warwick, Coventry, England (<https://www.property-care.org/conferences/invasive-weed-2022/>).
- 12th International Conference on Biological Invasions to be held at Tartu, Estonia during September 13-16, 2022. This International Conference will be organised by European Weed Research Society. (<https://www.ewrs.org/en/info/Events/12th-International-Conference-on-Biological-Invasions>).

Editorial

Dear Reader,

I think you are in process to take necessary steps in attending 3rd International Weed Conference (3rd IWC) to be held during 20-23 December, 2022 at Anand. With your constant support and ardent interest, ISWS is expecting a Galaxy of Weed Scientists in one platform to be enlightened each other about the new science of weed and therefore, your participation will farther enhance the horizon of weed science in general and ISWS in particular. I am really obliged for your constant support and therefore, it is my privilege to reach out to all the members as well as whole fraternity of weed science for their contribution on the emerging issues and current challenges in the field of weed science for our newsletter. Our newsletter in nutshell is always projecting your research achievements, honours, awards, M.Sc and Ph.D theses awarded under you supervision etc. in public domain. Suggestions from the members are always welcome in this regard.



We have already sown our inherent capacity to combat COVID-19 pandemic problem and at present, we are progressing steadily to get over from this problem with the intervention of vaccine double doses and precautionary dose. Stay safe and healthy.

Last but not least I express my sincere thanks to all the members who contributed for the issue of newsletter.

Pijush Kanti Mukherjee

Pijush Kanti Mukherjee
Editor

ISWS members are requested to contribute any major research finding as a news, awards obtained, Ph.D. obtained, forthcoming events on weed Science etc. to:

Dr. Pijush Kanti Mukherjee

Principal Scientist (Agronomy); ISWS Newsletter Editor

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