

Proceedings of Biennial Conference of Indian Society of Weed Science (ISWS) held at Raipur, India (25th-26th February, 2010)

The theme of Biennial Conference was “**Recent advances in weed science research- 2010**”.

Weeds compete with crops for available resources and decline the productivity. Despite the progress made in weed science over the last 40 years, weeds remain one of the major constraints to agricultural production in developed and developing countries. The greatest challenge of the 21st century is to meet the rising food demand while maintaining the sustainability of the natural resource base. Weeds adversely affect humans in both agricultural and non agricultural environments. Losses caused by weeds in the developing world are still at least 37% annually and in certain situations losses can go up to total crop failure. Management of weeds is a challenging task in context of increased cost of cultivation, reduced man power availability and increased concern about soil and water conservation.

Keeping the weed management challenges in view, the Indian Society of Weed Science had organized this conference which was co-sponsored by Directorate of Weed Science Research, Jabalpur and Indira Gandhi Krishi Vishwavidyalaya, Raipur. The purpose of this conference was to bring all the fraternity of weed scientists who are engaged in weed science research at various national institutes and universities. The attempts were made to have deliberations as lead talk on important topics from the eminent scientists working in the field for last many years.

The various activities held during the conference were as follows:

Inaugural Ceremony

The inaugural function of the conference was held at Indira Gandhi Krishi Vishwavidyalaya (IGKV), Raipur on 25 February, 2010. At the outset Dr. S.S. Shaw, Director Research Services, IGKV, Raipur (CG) welcomed the participants and hoped that this conference will be useful for the delegates and students to imbibe recent research being carried out in different parts of the country and the world.

The conference was inaugurated by Shri Chandra Shekhar Sahu, Hon'ble Minister for Agriculture, Veterinary, Fishery and Labour of state of Chhattisgarh. In his address, he requested delegates to formulate strategies for weed management which are especially suitable for Chhattisgarh. He informed about the extent of losses caused by weeds in the state of Chhattisgarh. Hon'ble minister also felicitated weed scientists from different parts of the country by honoring them with awards declared by ISWS.

Following booklets reflecting work on weed science were also released by the chief guest and dignitaries on the dais:

- *Kharpatwar Nirdeshika* by Dr. A.P.Singh *et al.*
- Two decades of weed science research in Chhattisgarh – An overview by Dr. G.S.Tomar *et al.*



Dr. M.P. Pandey, Hon'ble Vice-Chancellor, IGKV, Raipur was the Chairman of the inaugural function. During his address to the house, he emphasized to develop crop varieties which suppress weed growth.



Dr. Jay G. Varshney, Director, DWSR and President ISWS, Jabalpur in his presidential address put forwarded challenges in the field of weed science. He informed the house that if the management of invasive weeds, weedy rice, aquatic and parasitic weeds is not taken in time, it would be very difficult to manage them later. He also urged the participants for studying in depth the effect of global climate changes on crop-weed competition. This is the high time when proper awareness regarding damage due to weeds has to be created not only in farmers but to those also who are sitting on the helm of affairs. Dr. Varshney suggested that with proper weed management the country can be made food secured.



Dr. A.P. Singh, Principal Scientist, DWSR-Raipur center and Local Organizing Secretary of the Conference proposed the vote of thanks.

Conference highlights

- The various sessions of the conference were held at the auditorium of Indira Gandhi Krishi Viswavidyalaya, Raipur Chhattisgarh (India) during 25-26 February, 2010
- There were four technical sessions during the conference on various sub themes.
- There were two concurrent poster sessions on 25 and 26 February 2010.
- There was General Body Meeting of ISWS on 25th February 2010
- There was Scientist-Extension officers-Farmer Interface Meeting on 26th February 2010
- About 274 delegates from all over India attended the conference.
- A total of about 13 lead papers and three oral papers were presented in four technical sessions.
- Total 162 poster presentations were made.



Awards and fellowships

During inaugural ceremony of conference, the following scientists were honoured for their outstanding contributions to weed science:

ISWS Life Time Achievement Award : Dr. S.K. Mukhopadhyaya, Sri Niketan (WB)
: Dr. O.P. Gupta, Ex. Professor RAU, Jaipur (RJ)

ISWS Gold Medal : Dr. Jay G. Varshney, DWSR, Jabalpur (MP)
: Dr. N.N. Angiras, HPKV, Palampur (HP)

ISWS Fellowship : Dr. S.S. Punia, CCS HAU, Hisar (Haryana)
: Dr. D.J. Rajkhowa, AAU, (Assam)
: Dr. V.P. Singh, DWSR, Jabalpur (MP)



- : Dr. M.L. Kewat, JNKVV, Jabalpur (MP)
- : Dr. Shobha Sondhia, DWSR, Jabalpur (MP)
- ISWS Honorary Fellow : Dr. K.P. Jayanth, Bangalore (KA)
- ISWS Recognition Award : Dr. C.B. Gaikwad, Rahuri (MH)
- : Dr. C. Chinnusamy, TNAU, Coimbatore (TN)
- ISWS Best M.Sc. Thesis Award : Mr. Rajeev Dubey, GBPUT, Pantnagar (Uttarakhand) on “Studies on comparative efficiency of organic, inorganic and integral nutrient management on crop productivity, economics and soil-health under various rice-based cropping systems”
- ISWS Best M.Phil Thesis Award : Mr. Ram Shanker, RDVV, Jabalpur (MP) on “Effect of herbicide on egg laying of Mexican beetle *Zygotermis bicolorata*”
- ISWS Best Ph.D Thesis award : Mrs. Ramanjeet Kaur, PAU, Ludhiana (PJ) on “Identification of the predominant weeds in wheat (*Triticum aestivum* L.) through Remote Sensing and GIS”
- ISWS Best Book Awards : Dr. Shobha Sondhia and Dr. Jay G. Varshney, DWSR, Jabalpur (MP) jointly for their book in English entitled “Herbicides”. (in English category)
- : Dr. R.L. Arya Kanpur (UP) and Dr. Jay G. Varshney DWSR, Jabalpur (MP) jointly for their book in Hindi entitled ‘*Kharpatwar Prabandhan* [Weed management]’ (in Hindi category)
- Young Scientist Award : M.T. Sanjay, UAS, Bangalore (KA)



General Body Meeting

The General Body Meeting of ISWS was held in the evening of 25th February, 2010. The General Body approved the new executive body of society elected in the recently concluded elections as follows:



- President : Dr. Jay G. Varshney, DWSR, Jabalpur (Madhya Pradesh)
- Vice-President : Dr. C.T. Abraham, KAU, (Kerala)
- Secretary : Dr. Sushilkumar, DWSR, Jabalpur (Madhya Pradesh)
- Joint Secretary : Dr. M.L. Kewat, JNKVV, Jabalpur (Madhya Pradesh)
- Treasurer : Dr. V.P. Singh, DWSR, Jabalpur (Madhya Pradesh)

Besides, the election of two Zonal Secretaries each from the five Zones viz., North, South, East, West and Central was also approved.

Zonal Secretaries

- North Zone- 1. Dr. V. Pratap Singh, GBPUAT, Pantnagar (Uttarakhand)
2. Dr. S.S. Punia, CCS HAU Hisar (Haryana)
- South Zone 1. Dr. C. Chinnusamy, TNAU, Coimbatore (Tamil Nadu)
2. Dr. R. Devendra, UAS, Bangalore (Karnataka)
- East Zone 1. Dr. R.K. Ghosh, BCKV, Mohanpur (West Bengal)
2. Dr. Devendra Singh, RAU, Pusa (Bihar)
- West Zone 1. Dr. R.B. Patel, AAU, Anand (Gujrat)
2. Dr. C.B. Gaikwad, MPKV, Rauhri (Maharastara)
- Central Zone 1. Dr. S.S. Tomar, Gwalior (Madhya Pradesh)
2. Dr. A.P. Singh, IGKVV, Raipur (Chhattisgarh)

All the members unanimously approved the newly elected Executive Body of ISWS.

In General Body Meeting, newly elected President of ISWS, Dr. Jay G. Varshney gave thanks to all the members for their confidence and support and assured the members to work with full zeal and enthusiasm without favour and fervor to any body for the progress of the society. Dr. Sushilkumar, Secretary, ISWS apprised the house about activities carried out by the EC during 2008-2009. Dr. V.P. Singh, Treasurer of ISWS read out the receipt and expenditure during last two years. It was unanimously approved by the GB.

Dr. Sushilkumar, Secretary placed the following agenda before GB based on the feed back from the ISWS members:

1. Taking approval of the GB to consider publication of earlier issues of Indian Journal of Weed Science being published by other faction of society in the larger interest of members to avoid confusion among the scientific community.

There was detailed discussion in the meeting on this issue. It was unanimously approved by the General Body that elected Executive Body of ISWS will bring out the left issues of Indian Journal of Weed Science since 2008 onwards at the earliest. It was also approved by GB that the journal being published by other faction will be treated as unauthorized publication. The delegates were advised to make people aware about the genuine society.

2. Taking approval of GB to take legal advice and shelter of court against those members doing anti-society activities like taking money and publishing journal in the name of ISWS.

It was unanimously approved that present EC should take appropriate legal action against those members doing anti-society activities like taking money and publishing journal on the name of ISWS.

3. Taking approval of GB to delete the name of life members whose correct address is not available with the society as all communications made to them by the society returned back

Dr. Sushilkumar, Secretary, ISWS informed the GB that many letters are repeatedly being returned from the addresses of ISWS life members being with the society secretariat. He asked the approval to delete the same from the mailing list so that time and money of society could be saved. It was decided in GB that last effort should be made to update the existing address of ISWS members. If proper response is not received/ then their name may be deleted from the mailing list.

4. Taking approval of GB to enhance the membership fee

After detailed discussion, GB approved the membership fee structure as follows:

Type of membership	Existing (For Indian members, In Rs)	New Approved fee in Rs)	Existing (For Foreign members in US \$)	New Approved fee (For Foreign members in US \$)
Life	2050	3000	: 200	300
Annual	250	300	: 20	30
Institutional	1000	2000	: 100	200
Students	150	200	: -	-
Corporate	15000	15000	: -	-

5. Seeking approval of GB to enhance the EC tenure from existing two years to three years

Keeping in view the tenure period of three years in many societies in the country and the world, GB unanimously approved the tenure of EC from existing two years to three years for effective progress of the society.

Dr. Sushilkumar, Secretary thanked all the members for taking lively part in the house proceedings.

Scientist-Extension Worker-Farmer Interface

A Scientist-Extension Worker-Farmer Interface was held on 26th Feb. 2010 which was chaired by Dr. Jay G. Varshney, Director of DWSR, Jabalpur and President, ISWS. Dr. V.P. Singh acted as rapporteur of this session. The meeting was attended by representatives from industries, all PIs of DWSRC, several state govt. officials and progressive farmers. During the interface, solutions were offered to the problems on weed management being faced by the farming community of Chhattisgarh state. Few industry representatives raised the problem of availability of spurious herbicides in the market due to which farmers do not get desirable effect. They urged the Government to take some stringent steps to check the menace of spurious herbicides.



Plenary Session

The 2-day Conference after successful deliberations concluded with the Plenary Session on 26th Feb. 2010 which was chaired by Dr. M.P. Pandey, Vice Chancellor, IGKV, Raipur. Dr. Jay G. Varshney acted as Co-Chairman. Dr. Sushilkumar, National Organizing Secretary and Dr. A.P. Singh, Local Organizing Secretary acted as rapporteurs. The Chairman invited to make presentations of the respective technical sessions from rapporteurs of various sessions.



The report of **Technical Session- I** (Quarantine and invasive weed and weed management in changing climate) was presented by Dr. Partho Choudhury, Sr. Scientist, DWSR, Jabalpur. The session was chaired by Dr. O. P. Gupta from Jaipur and co- chaired by Dr. S. Shaw, Director Research Services, IGKV, Raipur. Dr. B. Duary and Dr. Partho Choudhury acted as rapporteurs.

Two lead papers and one oral presentation were made in this session. The first presentation on "Current status of quarantine weeds detected in imported wheat" was presented by Dr. VSGR Naidu from DWSR Jabalpur as coauthor with Dr. Jay G. Varshney. Dr. Naidu presented detailed description of the



accidental/incidental introduction of alien invasive weeds in India in the past and their establishment and spread. It was informed that to prevent entry of exotic weeds, Government of India has notified 31 quarantine weeds in Schedule-VIII of *Plant Quarantine (Regulation of Import into India) Order, 2003*. The import of wheat in India for consumption purpose is regulated from phytosanitary point of view under Plant Quarantine (Regulation of import in India) order, 2003. Imported wheat should be free from quarantine weeds listed in schedule VIII of this order. He narrated that in 2006-07, 6.29 million tones of wheat grain was imported from 11 countries with relaxed phytosanitary regulation. Many seeds of alien weeds have entered India through imported wheat. Out of which five weeds have been identified as quarantine in nature, two from Australia and three from Russia. *Cenchrus tribuloides* and *Solanum carolinense* from Australia and *Ambrosia trifida*, *Cynoglossum officinale* and *Viola arvensis* from Russia. Weed risk assessment value of these quarantine weeds has been estimated to be medium to high. The speaker informed the house about launching of “National Invasive Weed Surveillance” programme NIWS for early detection of these invasive weeds and to create public awareness about the new species with its head Quarter at Directorate of Weed Science Research, Jabalpur. He also presented the current status of the NIWS programme which is running in ten states of India where the imported wheat has been distributed through PDS. Dr. Varshney, Director, DWSR and Area Coordinator, NIWS programme appraised the house about the decision of import of wheat from USA and how the decision was cancelled due to his strong objection.

Second lead paper was presented on “Rising atmospheric CO₂ and crop research technique: a South Asian effort” by Dr. D.C. Uprety, National fellow of ICAR, New Delhi. The speaker highlighted the changes in earth’s environment as a result of mans’ activities, increased urbanization, exhausting of fuel reserves over the years, increased human population, increased extinction rates in marine and terrestrial ecosystems *etc.* Changes in the global environment that affect agriculture were also highlighted. The speaker graphically showed the exponential rise in the atmospheric CO₂ at IARI. He informed the house that CO₂ emission in the atmosphere due to agricultural activity in India is far below than global average as well as emission level of carbon in USA. Effect of CO₂ enrichment on climate and biological system was also highlighted. The technologies for studying plant response to CO₂ studies like open top chamber and its CO₂ regulating system and free air CO₂ enrichment technology (FACE) were also shown. Interaction effect of CO₂ and moisture stress on the grain size of mustard and root growth of some other species was also depicted. Chairman Dr. O.P. Gupta asked the speaker that which weed responds better to elevated CO₂- whether C 3 or C 4? The speaker explained that it is C 3.

The last oral presentation was made by Mrs. Ramanjit Kaur, Department of Agronomy, Punjab Agricultural University, Ludhiana on “Differentiating *Phalaris minor* and *Avena ludoviciana* from wheat crop through spectral reflectance characteristics under field conditions” to discriminate *Phalaris minor* and *Avena ludoviciana* from wheat crop through remote sensing and to find out the optimum time for their discrimination. It was concluded that the *Phalaris minor* and *Avena ludoviciana* can be distinguished from wheat crop at 34 DAS, which coincides with the time of application of herbicides for their control. The differences amongst various weed control treatments became clear after 52 days of sowing. This information can be used for site specific application of herbicides which is cost effective as well as environment friendly. Dr. M B B Prasad Babu threw light regarding hand held radio meter for recording radiance. Dr. Angiras from Palampur expressed that the study is important for information on per cent area of infestation and site specific weed management. The session was ended with the vote of thanks.

The **Technical Session II** was chaired by Dr. Urkurkar, Dean Student Welfare, IGKV, Raipur. It was co-chaired by Dr. S.S. Tomar, RVSKVV, Gwalior. Dr. J. Deka, AAU, Jorhat and Dr. K.K. Barman, DWSR, Jabalpur were the rapporteurs. Dr. Barman presented the reports of this technical session. The theme of this session was “HTGM and herbicide resistance crops & residue management”



In this session, four lead papers were presented. The First paper on “Status of herbicide resistance and management in wheat in India” was presented by Dr. S.S. Punia, CCSHAU, Hisar. Dr. Punia reported that *Phalaris minor* has shown both cross and multiple resistance of herbicide in wheat and yield reduction up to 1136 kg/ha due to herbicide resistance in Haryana. Initially, *P. minor* showed resistance to isoproturon but later on, biotypes resistant appeared to newer herbicides like sulfosulfuron, clodinafop, and fenoxaprop. He also interpreted the reason for development of resistance as i) low dose, ii) faulty application, iii) use of single herbicide for more than 12 years, vi) monoculture of rice- wheat and v) straw burning of rice residues.

Dr. R.K. Bhatia from PAU, Ludhiana presented his paper on “Increasing resistance in *Phalaris minor* against recommend herbicides”. He highlighted the following points:

- i) Resistance is increasing to clodinafop, sulfosulfuron, and fenoxaprop.
- ii) *P. minor* may soon develop resistance to pinoxadem in 2-3 years
- iii) Integrated weed management should be followed.

During discussion, doubts were also expressed about the existence of too much resistance in Haryana and Punjab as reported in the studies. After detail discussion on the paper, suggestion was emerged to follow integrated weed management to avert or delay to manage herbicide resistance. It was also suggested that dhaincha followed by berseem for 3-4 years controlled *P.minor* problem fully.

It was pointed out by Dr. Jay G. Varshney that use of too much herbicide may be a reason for herbicide resistance but he cautioned that ineffectiveness of herbicides may be due to spurious product and therefore nonperformance of the so called herbicide(fake or spurious) should not be misunderstood as herbicide resistance.

The third paper was presented by Dr. Kamta Prasad from Project Directorate for Farming Systems Research, Modipuram, Meerut on “Weed management in organic farming research”. Various methods suitable for weed management under organic farming were discussed. Objection was raised on reporting use of the term of organic herbicide rather using the word green labeled herbicide as conventional herbicides is basically organic. Questions were also asked regarding efficacy of night tillage in controlling weeds. The speaker also pointed that soil solarization is a good practice of weed management. It was also informed that high weed diversity along with high weed abundance is an important issue under organic farming and it needs altogether a different weed management strategy under organic farming.

The fourth and the last paper of the session on “Current status of herbicide residues in soil, water and commodities” was presented by Dr. R.B. Patel from GAU, Anand. It was highlighted that FYM application decreases half life and thus reduce persistence of soil applied herbicides in FYM applied fields. In most of the studies, herbicides residues at crop harvest was reported below MRL values. No threat to ground water due to herbicide leaching was reported.

The theme of **Technical Session III** was “Weed management in various crops”. It was chaired by Dr. R.L. Pandey, Dean, College of Agriculture, IGKV, Raipur and co-chaired by Dr. T.V. Ramachandra Prasad, UAS, Bangalore. Dr. Ramesh Babu, UAS, Dharwad and Dr. Bhumesk Kumar, DWSR, Jabalpur acted as rapporteurs. Dr. Ramesh Babu presented the proceedings of the session.



Five lead and one oral paper were presented in this session. Dr. N.P. Singh, IIPR, Kanpur presented paper on “Herbicide tolerant genetically modified crops- retrospect and prospects in India” which was scheduled for Session II. Dr. Singh gave a brief status of GM crops world wide. In USA, the GM crop area was stated high which is increasing with the time. He also highlighted different mechanism of herbicide resistance. He summarized that adoption of herbicides resistance GM crops can reduce the cost of production effectively but he also expressed his concern over environment risks and the debated pollution hazards from GM crops vs. non-GM crops. Among the GM crops, soybean, maize, cotton and canola were the major crops. Dr. Singh emphasized the adoption of herbicide resistant GM crops keeping in view the growing demand of food.

Dr. C. Chinnusamy from TNAU presented the paper on “Weed shift in long term cropping system” He pointed out that various agronomic practices and cropping systems have their impact on weed shift. He gave a detail account of weed shift in various cropping systems. He concluded that problems of weed shift can be over come by adopting integrated weed management, rotation of different control methods or herbicides rotations for the same crop, use of certified and quality seeds for better germination and different cultural practices for better crop growth and productivity. He further emphasized the importance of cropping systems, zero tillage and nutrient management in solving the problems of weed shift and for effective weed management.

The third paper was presented by Dr. T.V. Ramachandra Prasad from UAS, Bangalore on “Current status of aquatic weeds-problems and their management in India. Dr. Prasad updated the status of aquatic weeds in India and problems caused by them. He suggested that management of aquatic weeds can be done more effectively by prevention measures, physical and mechanical methods besides biological control. He also advocated use of glyphosate, paraquat and 2, 4-D. He stated that fish growth was affected by eutrophication by decaying weeds not by chemicals.

Fourth paper was presented by Dr. V.P. Singh from GBPAUT, Pantnagar on “Current status of zero tillage in weed management” Dr. Singh informed the advantages of zero tillage by cutting down the production cost and saving of Rs.2000-2500 per hectare compared to conventional tillage. He emphasized that success of zero tillage technology may lead increased cropping intensity and enhanced economic returns. He stressed the need of further research in this field.

The fifth paper was presented by Dr. N.N. Angiras from CSKHPKV, Palampur on “Current weeds problems of hill-ecosystem and their management” Dr. Angiras gave current status of weed problem of hilly ecosystems and stated that more area is under non-cropped area. The most problematic weeds of non-cropped area were *Lantana camara*, *Parthenium hysterophorus*, *Chromolaena* spp. and *Ageratum* spp. which have affected the vegetation biodiversity besides causing health hazards In Rabi crops, *Avena* and *Lolium* spp.were major weeds while in *kharif Alternanthera philoxeroides*, *Brachiaria*, *Digitaria*, *Mimosa invisa* and *Ageratum* are the main weeds. Integrated management developed for management of weeds in non-cropped lands needs to be adopted for management of weeds in non-cropped lands with the help of Govt. agencies and NGOs.

The oral presentation was made by Dr. Jaidev Sharma, NDUAT, Faizabad on “Weed management studies in autumn planted sugarcane based intercropping systems”. Treatments receiving pendimethalin, isoproturon performed better. Intercropping with potato was found to increase CYE yield significantly by 59 % over sole crop of sugarcane.

The theme of **Technical Session IV** was “Problems and prospects of weed management in rice and weed utilization”. It was chaired by Dr. Jay G. Varshney, Director, DWSR, Jabalpur and co-chaired by Dr. C.T. Abraham, KAU, Thrissur. Dr. R. Devendra, UAS, Bangalore was the rapporteurs. The reports of the session was presented by Dr. R. Devendra.



In this session, out of 5 papers four lead papers were presented. Dr. C.T. Abraham presented a paper on “Current status of weedy rice in India and strategies for its management”. He informed that weedy rice present in Asia, Africa, Latin America is a wild and weedy form of genus *Oryza* known as wild or red rice. Many wild relative of *Oryza indica* groups have been seen in India being the centre of origins of rice. Weedy species of rice have been reported in U.P., Bihar, Orissa, Manipur, West Bengal and south India. To manage the weedy rice problem, Dr. Abraham suggested (1) use of clean seed of rice (2) steal seed bed, (SSB), (3) non-selective herbicide, (4) thiobencarb/butachlor spray, (5) use of rice variety tolerant to herbicide imazethapyr as used in red rice infested fields of USA. (6) manual weeding of weedy rice before seed shattering, (7) straw burning of machine harvested stubble. Dr. R.K. Bhatia suggested that stable burning contaminate the environment hence should be avoided. Dr. C.T. Abraham informed the house that even decomposition of straw cause contamination so we do not have any choice in order to control weedy rice infestation.

The second lead paper was presented by Dr. R.K. Ghosh, on “Weed management in transplanted and direct seeded rice”. Dr. Ghosh stated that for food security of the country, weed management in rice is imperative. He informed that weed infestation is more severe in upland rice (71%) and in direct seeded rice crop yield loss was reported between 5-100% depending on extent of weed species present. He suggested the use of mechanical methods due to non-availability of labour and use of legume with rice either as inter crop or mixed crop.

Dr. M.L. Sharma presented oral Paper on “Weed management practice in rice-based cropping system in chhattisgarh : a farmers perspective analysis”. He informed the house that owing to urbanization and industrialization, agricultural labour was diverted; farmers are unable to control weeds in time through labours even at higher rate. Dr. Sharma advocated to demonstrate and popularize herbicide use. He presented the case study of three village's viz. Tarra from Raipur District. Hingna from Durg, Kotanpali from Mahasamund. He informed that television, radio and Rural Agricultural Extension officer were a source of agricultural and allied information. He informed poor use of herbicide in the study area due to lack of awareness and poor economic condition.

Dr. Ramesh Babu from UAS, Dharwad presented an oral paper dealing with weed utilization as medicine, feed, composting, industrial products – paper making, alcohol production *etc.* from the existing weed species. Dr. Babu emphasized the need to utilize weeds for various useful purposes.

Poster sessions

Poster session report was presented by Dr. S.S. Kolhe, Chairman of Poster Evaluation Committee. The poster session venue was Nehru Library, IGKV, Raipur. In this session, total 256 research papers were scheduled but only 162 research papers were presented in various 8 themes as poster presentations. Of the



total presentations, 76 presentations were done on 25th February and remaining 86 posters were depicted on 26th February 2010. Most of the posters were presented well. Delegates visited on both the days and interacted. There was through discussion on some of the posters. The poster evaluation committee visited on both the days and judged following papers for awards:

First award was given to Dr. MT Sanjay, T.V. Ramachandra Prasad, G.R. Denesh, H.S Ravi Kumar, D.S. Lokesh, N. Ananda and M.K. Basavaraj for their paper entitled “Productivity and economics of rice as influenced by weed management practices under different crop establishment techniques”

Second award was given to Dr. C. Chinnusamy, N.P. Prabhakaran and P. Lakshman Kumar for their work entitled “Eco-biological characterization of *Orobanche cernua* and its management in tobacco planted in alfisols of western zone of Tamil Nadu”



Third poster award was won by P. Janaki, C. Chinnusamy and K. Nalini for their work entitled “Adsorption and desorption characteristics of alachlor in different soils of Tamil Nadu”



Consolation award was given to Madhav Pandey, A.P. Singh and U.K. Wati for their work on “Prioritization of weed management research in last three decade: a documentation based review”



Dr. Sushilkumar, Secretary ISWS proposed the vote of thanks to all those involved in making this conference successful.

Recommendations emerged out during conference

1. Importing authority should be careful in making decision of importing wheat and other grains to minimize the influx of invasive weeds.
2. Directorate of Weed Science, Jabalpur should create more public awareness on the weed species recently introduced along with imported wheat.
3. C₃ weeds may pose a big threat to food production and biodiversity. There is great need to develop suitable agro-techniques suited to decline crop and weed competition in the changing global climate.
4. There is need to make more efforts in transgenic technology for developing more crops under HTGM. Efforts should be made to monitor the ill effects of GM technology, if any, in crops where India is having wild relatives.
5. More research efforts are needed in developing technology of spectral reflectance characteristics for assessing various weed problems at large area and to develop management strategy.
6. The over use of herbicides may cause resistance development in weeds. The practice of integrated weed management is urgently needed to cut down the use of herbicides particularly against wheat,
7. The presence of organic manure in soil decreases the persistence of soil applied herbicides. Therefore, it is recommended to apply organic manure at regular basis.

8. For better crop growth and productivity and to over come problems of weed shift, more emphasis should be given on adoption of integrated weed management, rotation of herbicides in the same crop and use of certified and quality seeds.
9. For management of aquatic weeds, prevention, biological cum chemical integration was recommended.
10. The importance of losses due to weeds has yet not been realized by policy planners. An Authority with the name of “National Weed Management Authority” should be made by Government of India to address the problem of weed problem in the country.
11. Proper utilization of weeds itself can contribute significantly to enhance the income of poor farmers besides giving benefit of control in various ecosystems.

List of Registered Participants in ISWS Biennial Conference at Raipur

S. No.	Name	Address	S. No.	Name	Address
1	Dr. Radhey Shayam	GBPUAT, Pantnagar (UA)	2	Shri Tushar Patel	NIWS, Nausari (Gujarat)
3	Mr. R.C. Mainwal	GBPUAT, Pantnagar (UA)	4	Shri D.K. Patel	NIWS, Nausari (Gujarat)
5	Miss. Nisha Jangde	IGKV, Raipur (CG)	6	Shri P.A. Patil	NIWS, Nausari (Gujarat)
7	Mr. S. Nantha Kumar	TNAU, Madurai (TN)	8	Dr. Rajendra Deshmukh	Syngenta India Limited
9	Mr. P. Anand Kumar	TNAU, Madurai (TN)	10	Dr. C. Nithya	TNAU,Coimbatore (TN)
11	Dr. C.R. Patil	DWSR, Dharwad (KA)	12	Dr. V.S. Myanavathi	TNAU,Coimbatore (TN)
13	Dr. S.Sarkar	SRS, Bhubaneswar (OR)	14	Dr. R. Sathya priya	TNAU.Coimbatore (TN)
15	Dr. A. Hossain	VBS, West Bengal	16	J. Bhuneswari	TNAU.Coimbatore (TN)
17	Dr. D.C. Mondal	VBS, West Bengal	18	C. Sangeetha	TNAU.Coimbatore (TN)
19	Dr. S.S. Mishra	OUAT, Bhubaneswar (OR)	20	Dr. C.Babu	TNAU,Coimbatore (TN)
21	Mr. Avinash Singh Tomar	SI, NIWS, Gwalior (MP)	22	Dr. D. Ravisankar	TNAU,Coimbatore (TN)
23	Mr. Jagendra Singh	SI, NIWS, Gwalior (MP)	24	Dr. Adhikant Pradhan	SG CARS.Jagdapur (MP)
25	Dr. R. Balasunbramonian	TNAU, Madurai (TN)	26	Megha Dubey	JNKVV. Jabalpur (MP)
27	Dr. P. Balamunugan	TNAU, Madurai (TN)	28	Prachi Kobhu	JNKVV. Jabalpur (MP)
29	Miss Shweta Gupta	IGKV, Raipur (CG)	30	Rajeev Dubey	GBPUART, Pantnagar (UA)
31	Dr. K. Prasad	PDFSR, Meerut (UP)	32	Mr. G. Pramod	UAS. Banglore (KA)
33	Dr. A.P. Singh	IGKV, Raipur (CG)	34	K. Naini	TNAU,Coimbatore (TN)
35	Dr. R. Davendra	GKVK, Banglore (KA)	36	Dr. S.Srinivas	TNAU.Coimbatore (TN)
37	Dr. Rohitshav Singh	GBPUAT, Pantnagar (UA)	38	B. Jayakumar	TNAU,Coimbatore (TN)
39	Dr. Dheer Singh	GBPUAT, Pantnagar (UA)	40	M. Revathi	TNAU.Coimbatore (TN)
41	Dr. A.K. Singh	NDAUT, Faizabad (UP)	42	P. Ayyadurai	TNAU.Coimbatore (TN)
43	Dr. Jai Deo Sharma	NDAUT, Faizabad (UP)	44	K. Elangovan	TNAU.Combatore (TN)
45	Dr. S.S. Singh	NDAUT, Faizabad (UP)	46	M. Thiyagarajan	TNAU,Coimbatore (TN)
47	Dr. R.R. Upasani	BAU, Ranchi (JK)	48	E. Jegadeesan	TNAU.Coimbatore (TN)
49	Mr. Sanjay Shinde	NIWSP, Dapoli (MS)	50	S. Dhansekaran	TNAU.Coimbatore (TN)
51	Mr. Kuldeep Daltajiras	NIWSP, Dapoli (MS)	52	Mr. Prakash Kulkarni	Foggers India Pvt. Ltd.
53	Mr. Mithun Tukaram	NIWSP, Dapoli (MS)	54	Dr.TV. Ramchandra Prasad	UAS, Banglore (KA)
55	Shri Tushar Patel	NIWS, Nausari (Gujrat)	56	Dr. MT Sanjay	UAS, Banglore (KA)
57	Dr. R.K. Ghosh	BCKV, West Bengal	58	Dr. N Ananda	UAS, Banglore (KA)
59	Dr. M.L. Kewat	JNKVV, Jabalpur (MP)	60	Mr. Ramalu	UAS, Banglore (KA)
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77	Dr. Ram Naresh Dixit	CSAU, Kanpur (UP)	78	Dr. D.K. Panday	DWSR, Jabalpur, (MP)
79	Dr. V. Divakar Reddy	NIWS, Tripathi (AP)	80	Dr. P.K. Singh	DWSR, Jabalpur, (MP)
81	Dr. Basweshwen Ghodki	DOW, Pune (MH)	82	Dr. K.K. Barman	DWSR, Jabalpur, (MP)
83	Dr. Tribijayi Badjena	OUAT, Bhubaneswar (OR)	84	Dr. R. P.Dubey	DWSR, Jabalpur, (MP)
85	Dr. Subrat K. Ratha	OUAT, Bhubaneswar (OR)	86	Dr. Sushil Kumar	DWSR, Jabalpur, (MP)
87	Dr. Bidhulashusan Jena	OUAT, Bhubaneswar (OR)	88	Dr.P.J. Khankhane	DWSR, Jabalpur, (MP)
89	Dr. K.L. Nandeha	TCBCARS, Bilaspur (CG)	90	Dr. Shobha Sondhia	DWSR, Jabalpur, (MP)
91	Dr. R.B. Tiwari	TCBCARS, Bilaspur (CG)	92	Dr. V.S.G.R. Naidu	DWSR, Jabalpur, (MP)
93	Dr. T.D. Pandey	TCBCARS, Bilaspur (CG)	94	Dr. C.Kannan	DWSR, Jabalpur, (MP)
95	Dr. R.K. Shukla	KVK, Bilaspur (CG)	96	Dr. Bhumesk Kumar	DWSR, Jabalpur, (MP)
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101	Dr. Sanjay Verma	Bilaspur (CG)	102	Sh. Pavan K. Kaurav	DWSR, Jabalpur, (MP)
103	Dr. R.K. Hota	OUAT, Bhubaneswar (OR)	104	Dr. M.S. Raghuvanshi	DWSR, Jabalpur, (MP)
105	Shilpa Kaushik	TA, NISM, Korba (CG)	106	Dr. J. Deka	AAU, Jorhat (Assam)
107	Nirmodh Pradha	IGKV, Raipur (CG)	108	Dr. N.C. Deka	AAU, Jorhat (Assam)
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111	Dr. H.P. Agrawal	TCBCARS, Bilaspur (CG)	112	Dr. N. Baruah	AAU, Jorhat (Assam)
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123	Dr. N. Pandey	IGKV, Raipur (CG)	124	Dr. Shiju	KAU, Thrissur (KR)
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129	Dr. M.P. Tripathi	IGKV, Raipur (CG)	130	Dr. K Govindarajan	TNAU, Coimbatore (TN)
131	Dr. R.N. Sharma	KVK, Janjgir-Champa	132	Dr. P Janaki	TNAU, Coimbatore (TN)
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139	Shri S. Choudhiry	RMD, Ambikapur (CG)	140	P. Rawati	ANGRAU
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145	Paramita	BCKV Mohanpur (WB)	146	V.P. Rathod	MAU, Parabhani (MH)
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149	Subhajit Mallick	BCKV Mohanpur (WB)	150	Saket Dubey	IGKV, Raipur (CG)
151	Swapan Kumar	BCKV Mohanpur (WB)	152	PI NBM Project	IGKV, Raipur (CG)
153	Souman Bers	BCKV Mohanpur (WB)	154	Deepak Chandrakar	IGKV, Raipur (CG)
155	Pinki Pal	BCKV Mohanpur (WB)	156	Dr. R.N.Ganguli	IGKV, Raipur (CG)
157	Pritam Kumar	BCKV Mohanpur (WB)	158	Dr. H.L. Sonboir	IGKV, Raipur (CG)
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161	Dr. D.K. Roy	RAU, Pusa (Bihar)	162	Dr.V.K. Kosta	IGKV, Raipur (CG)
163	Dr. Devendra Singh	RAU, Pusa (Bihar)	164	Dr. M.L. Shsrma	IGKV, Raipur (CG)
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203	G. Kiran	DWSRC, Hyderabad (AP)	204	Dr. N.K. Choubey	IGKV, Raipur (CG)
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213	Dr. Tapas Choudhiry	IGKV, Raipur (CG)	214	Dr. S.K. Dwivedi	IGKV, Raipur (CG)
215	Dr. H.B. Sharma	RBS, Bichpuri, Agra (UP)	216	S.K. Gupta	IGKV, Raipur (CG)
217	Dr. R. Pathak	NDUAI, Faizabad (UP)	218	G. P. Verma	IGKV, Raipur (CG)
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225	N.S. Jadhav	MAU, Parabhani (MH)	226	Dr. R.B.S. Sengar	IGKV, Raipur (CG)
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239	Dr. A.D.Kadlay	MPKV, Ranchi (JK)	240	Dr. O.P. Kashyap	IGKV, Raipur (CG)
241	Dr. P.S. Bodahe	MPKV, Ranchi (JK)	242	Shri S.R. Ratre	IGKV, Raipur (CG)
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245	Dr. Ram Ashish	CSAUA, Kanpur (UP)	246	Dr. M.P. Thakur	IGKV, Raipur (CG)
247	Rajendra Kumar	CSKHPKV, Palampur (HP)	248	Dr. Vinay Pandey	IGKV, Raipur (CG)
249	Dean	ADAC, Trichy-9	250	Shri A.P. Mukherji	IGKV, Raipur (CG)
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