ISWS News Letter
A publication of Indian Society of Weed Science
January – March 2010

Message from the President

This Newsletter highlights the Society's significant activities carried out during the period under report.

The election of the EC of ISWS was conducted and new Executive Committee has taken over. I congratulate all the new office bearers. Indian Society of Weed Science also conducted its Biennial Conference during 25-26 February, 2010 at IGIV, Raipur. The overwhelming participation in Poster Session stunned us. The GB meeting of ISWS was also held on 25th February, 2010. A national consultation programme was organized at our Directorate.

I sincerely hope that we, all the members of ISWS, actively enjoyed all the events conducted under the banner of Society.

Jay G. Varshney

Dr. Ayyappan – new DG, ICAR

Dr. Sabbana Ayyappan becomes the new Secretary, Department of Agricultural Research and Education and Director General, Indian Council of Agricultural Research. The ISWS family extends a warm welcome to Dr. Ayyappan.

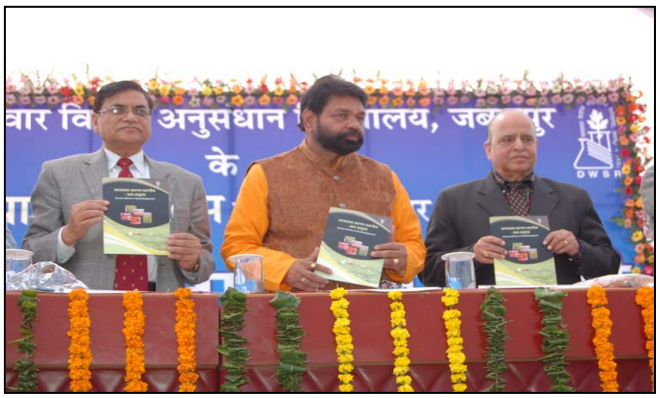
The unique combination of strong research aptitude and dexterity in research management led Dr. Ayyappan to hold key positions in ICAR. He joined as Scientist in 1978 at Central Inland Fisheries Research Institute, Barrackpore. In 1996, at a young age of only 41 years, he became Director of Central Institute of Freshwater Aquaculture, Bhubaneswar and subsequently Director of Central Institute of Fisheries Education, Mumbai, in the year 2000. In 2002 he became Deputy Director General (Fisheries) at ICAR, New Delhi till his present assignment.

We wish Dr. Ayyappan all success.

Dr. K. Kasturirangan: remote sensing – a boon for agriculture

Directorate of Weed Science Research (DWSR), Jabalpur celebrated its 21st Foundation Day on the 23rd January, 2010. The presence of Dr. K. Kasturirangan made it remarkable. On this occasion, an interface meeting between the team of Advisors of Planning Commission, Govt. of India led by Dr. K. Kasturirangan, Member (Science), Planning Commission and Directors and Heads of different ICAR institutes in Central Zone was convened to prepare an account of the stock of mandates, achievements, gaps and linkages. Dr. K. Kasturirangan chaired the meeting. Directors from DWSR-Jabalpur, IISS-Bhopal, CIAE-Bhopal, HSADL-Bhopal and Project Coordinators/Heads of Stations of Micronutrients-Bhopal, IARI Regional Station-Indore, CIFE-Powerkheda, CSWCRT-Datia, Zonal Project Directorate (Zone-VII)-Jabalpur and PC-S&N-Jabalpur participated in the discussion. Directors presented their individual deliberations in the

guide line suggested by Planning Commission team. The constraints behind the technology development and its translation into the field of farmers were worked out during the brain storming discussion.



Finally, like previous years, the main attraction of this celebration was the "Kisan Mela" and the cynosure of 5000 farmers, students and scientists was Dr. K. Kasturirangan who inaugurated the Mela. Dr. R. K. Kusmaria, the Hon'ble Minister of Agriculture, Govt. of MP presided over the inaugural function. He, in his lecture, urged upon all the concerned departments to have better coordination among all the stake holders to minimize the hardship of farmers. He also advised the policy planners to include the aspect of weed management in the NAREGA for the benefit of farmers. Dr. Jay G. Varshney, Director of the Institute, presented an overview on weed problems and emphasized on the creation of awareness among farmers to control weeds. The Foundation Day Lecture delivered by Dr. Kasturirangan mesmerized the audience. He discussed the scope of improved agricultural technology and remote sensing in the precision agriculture. He also stressed upon strengthening of extension agencies to transfer the existing technologies which are extremely potential for food security.

Biennial Conference of Indian Society of Weed Science

The Biennial Conference of Indian Society of Weed Science (ISWS) was held at IGKVV, Raipur, CG on 25^{h}-26th Feb, 2010. The theme of Biennial Conference was "Recent advances in weed science research- 2010". The conference was inaugurated by Shri Chandrashekhar Sahu, Hon'ble Minister of Agriculture, Veterinary, Fishery and Labour in the State of Chhattisgarh. Dr. M.P. Pandey, Vice-Chancellor, IGKV, Raipur was the Chairman of the function. Dr. Jay G. Varhsney, Director, DWSR and President of ISWS, Jabalpur emphasized in his presidential address on control of invasive weeds. Dr. Varshney cautioned the participants that if proper weed management strategy could not be developed in time, the country has to suffer a lot.

There were four technical sessions on various sub themes, two concurrent poster sessions, a Scientist-Extension officers-Farmer Interface meeting and a plenary session during the conference. There were 274 delegates. A total of about 13 lead papers and 3 oral papers and 162 posters were presented in those sessions and an even number of 274 delegates took part in those brain storming activities.

The two-day's discussion revealed the causes of aggravated weed problem and their probable measures. The import of grains and improper weed management practised by the farmers are favouring weed problem in our country. The climate change will also pose great threat as the higher concentration of CO_2 will favour the growth of weeds. Adoption of phytosanitry measure, transgenic technology, safer weed management practices, and remote sensing technology may help the farming community to combat the weed menace.

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 rapporteurs of this session. The meeting was attended by representatives from some industries, all the PIs of DWSRC, Dr. A.P. Singh, PI-DWSRC, IGKV and Local Organizing Secretary of conference and many progressive farmers. During the interface, solutions were offered to the problems on weed management being faced by the farming community of Chattisgarh state. Some industry representative 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 adulteration in 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 and Dr. Jay G. Varsheny acted as Co-Charman. Dr. Sushilkumar, National Organizing Secretary and Dr. A.P. Singh, Local Organizing Secretary acted as rapporteurs.

The report of Technical Session-I

Theme: "Quarantine and invasive weed and weed management in changing climate"

In the first presentation on "Current status of quarantine weeds detected in imported wheat" Dr. VSGR Naidu from DWSR Jabalpur narrated the facts of the accidental/incidental introduction of alien invasive weeds in India in the past and their establishment and spread. 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 VIIIth of this order. In 2006-07 6.29 million tones of wheat grain was imported from 11 countries with relaxed phytosanitory regulation. Many seeds of alien weeds have entered India through imported grain, out of which five weeds have been identified as quarantine in nature, two (*Cenchrus tribuloides* and *Solanum carolinense*) from Australia and three (*Ambrossia trifida, Cynoglossum officinale* and *Viola arvensis*) from Russia. Weed risk assessment value of these weeds have been estimated to be medium to high. He discussed the current status of the National Invasive Weed Surveillance 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 CO_2 and crop research technique: a South Asian effort" by Dr. D. C. Uprety, National fellow of ICAR, New Delhi. The speaker highlighted the changes of earth's environment as a result of increased human population, increased urbanization, exhausting fuel reserves over the years, loss of biodiversity and, finally, change in climate due to human activity. Changes in the global environment that affect agriculture were also highlighted. The speaker graphically showed the exponential rise in the atmospheric CO_2 at IARI. The CO_2 emission in the atmosphere due to Agricultural activity in India is far below from global average as well as emission level of carbon in USA. Effect of CO_2 enrichment on climate and biological system was also highlighted. The technologies for studying plant response to CO_2 like open top chamber and its CO_2 regulating system and free air CO_2 enrichment technology (FACE) were also discussed. Interaction effect of CO_2 and moisture stress on the grain size of mustard and root growth of some other species was also depicted. C3 weeds respond better to elevated CO_2 than C 4.

The last presentation was made by Dr. 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. *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.

Technical Session II

Theme: "HTGM and Herbicide tolerant crops & residue management"

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 about *Phalaris minor* which has shown both cross and multiple resistance of herbicide. The yield reduction of wheat was up to 1136 kg/ha in herbicide resistance areas in Haryana. Initially, *P. minor* showed resistance to isoproturon but later on, biotypes resistant appeared to herbicides like sulfosulfuron clodinafop, 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. During discussion Dr. J.G. Varshney pointed out that use of too much herbicide might be a reason for herbicide resistance.
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) Fenoxaprop has lost efficacy
ii) Resistance is increasing to clodinafop, sulfosulfuron, fenoxaprop.
iii) *P. minor* may soon develop resistance to pinoxaden in 2-3 years
iv) Integrated weed management should be followed. It was also suggested that dhaincha followed by berseem for 3-4 years controlled *P. minor* problem fully.

The third paper was presented by Dr. Kamta Prasad of project Directorate for Farming Systems Research, Meerut on "Weed Management in organic farming research". Various methods suitable for weed management under organic farming were discussed. The speaker opined that soil solarization is a good practice of weed management and there will be natural balance in soil microflora. It was also told 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.

In his presentation on "Current status of herbicide residues in soil, water and commodities" Dr. R.B. Patel from GAU, Anand highlighted that FYM application decrease half-life and thus persistence of soil applied herbicides minimizing the risk of ground water contamination.

Technical Session III

Theme: "Weed management in various crops"

Dr. N.P. Singh, IIPR, Kanpur presented paper on Herbicide tolerant genetically modified crops-retrospect and prospects in India". Dr. Singh gave a brief status of GM crops world wide. In USA, the GM crop area was stated high which is increasing with 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 it risks the environment. Among the GM crops, soybean, maize, cotton and canola are the major crops

Dr. C. Chinnusamy from TNAU presented the paper on "Weed shift in long term cropping system". The problems of weed shift can be over come by adopting integrated weed management, rotation of different control methods, use of certified and quality seeds for better germination and different cultural practices for better crop growth and productivity. He emphasized the importance of cropping systems, zero tillage and nutrient management in solving the problems of weed shift and for effective weed management.

DR. T.V. Rmahcandra Prasad from UAS, Bangalore presented his lecture on "Current status of aquatic weeds-problems and their management in India". Management of aquatic weeds can be done more effectively by prevention measures, physical and mechanical methods besides

biological control. He advocated the use of glyphosate, paraquat and 2,4-D. To him, fish growth was affected by eutrophication by decaying weeds not by chemicals.

In his presentation on "Current status of zero tillage in weed management" Dr. V. P. Singh from GBPAUT, Pantnagar explained the advantages of zero tillage over conventional tillage. He emphasized that success of zero tillage technology may lead cropping intensity and enhanced economc returns. He stressed the need of further research on this field.

The fifth paper was presented by DR. N.N. Angiras from CSKHPKV, Plampur on "Current weed 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, Chromolanea* and *Ageratum* which have affected the vegetation biodiversity besides causing health proble,ms. In *rabi* crops, *Equisatum, Avena,* and *Lolium* were major weeds while in *kharif Alternanthera philoxeroides, Brachiaria, Digitaria, Mimosa* sp. and *Ageratum* are the main weeds. Integrated management developed in non-cropped lands needs to be adopted for management of weeds in non-cropped lands with the 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". Intercropping with potato was found to increase CYE yield significantly by 59 % over sole crop of sugarcane.

Technical Session IV

Theme: "Problems and prospects of weed management in rice and weed utilization".

Dr. C.T. Abhraham in his paper on "Current status of weedy rice in India and strategies for its management" informed that weedy rice present in Asia, Africa, Latin American is a wild and weedy form of genus *Oryza* known as wild or red rice. Many wild relatives 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 Indian states. However, in Haryana and Punjab, weedy rice problem has not been reported. 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 spary, (5) non GM rice variety "Clear field" tolerant to herbicide imazethapyr used in red rice infested field of USA, (6) weeding of weedy rice before seed shattering, (7) straw burning of machine harvested stubbles. Dr. R.K. Bhatia suggested that stable burning contaminate the environment. Dr. Abraham informed the house that decomposition of straw even causes contamination. Therefore, we do not have any choice to control weedy rice infestation.

Dr. R.K. Ghosh from BCKV, WB in his lecture on "Weed management in transplanted and direct seeded rice", informed that weed infestation is more sever 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 is in the favor of the use of mechanical methods and the use of legume with rice either as inter crop or mixed crop.

Dr. M.L. Sharma during his deliberation informed the house that owing to urbanization and industrialization, agricultural labor was diverted. Under this situation Dr. Sharma is in favor of herbicide use. To him, poor use of herbicide in his study area was due to lack of awareness, lack of visible effect of herbicide and poor economic condition.

Dr. Ramesh Babu from UAS, Dharwad presented an oral paper dealing with weed utilization as medicine, feed, compost and industrial products (paper making, alcohol production, etc.) from the existing weed flora.

Poster sessions

162 research papers were presented in 8 different themes as poster. The poster evaluation committee judged following papers for awards:

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

Second award to Dr. C. Chinnusamy, Dr. N.P. Prabhakaran and Dr. P. Lakshmankumar for their work entitled "Eco-biological characterization of

Orobanche cernua and its manamgent in tobacco planted in alfisols of western zone of Tamil Nadu"

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

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

Recommendations emerged out

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. C_3 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.

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 different control methods including herbicide application for the same crop and use of certified and quality seeds.

9. For management of aquatic weeds, prevention, biological cum chemical integration was recommended.

10. A National Authority on "Weed management in India" should be made by Government of India to address the problem of weeds in our country.

11. The importance of weed has yet not been realized by policy planners. Proper utilization of weeds itself can contribute significantly to enhance the income of poor farmers besides giving benefit of control in various ecosystems.

Awards and fellowships:

During inaugural ceremony of conference, various awards to weed scientists for their out standing contributions were announced. The following awards were distributed :

Life Time Achievement Award

Dr. S.K. Mukhopadhyay, Shriniketan West Bengal
Dr. O.P. Gupta, RAU, Jaipur.

ISWS Gold Medal

Dr. Jay G.Varshney, DWSR Jabalpur (M.P.)
Dr. N.N. Angiras, HPKV Palampur (H.P.)

ISWS Fellowship

Dr. S.S. Punia, CCS HAU Hisar (Haryana)
Dr. Shobha Sondhia, DWSR Jabalpur
Dr. Rajkhowa, AAU Assam
Dr. V.P. Singh, DWSR Jabalpur
Dr. M.L. Kewat, JNKVV Jabalpur

ISWS Honorary Fellow
Dr. K.P. Jayanth, Bangalore

ISWS Recognition Award
Dr. C.B. Gaikwad, Rauhri
Dr. C. Chinnusamy, TNAU Coimbatore

ISWS Best Ph.D Thesis award
Mrs. Ramanjeet Kaur, PAU, Ludhiana on "Identification of the predominant weeds in wheat (*Triticum aestivum* L.) through Remote Sensing and GIS",

ISWS Best M.Sc. Thesis Award
Mr. Rajeev Dubey, GBPUT, Pantnagar on "Studies on comparative efficiency of organic, inorganic and integral nutrient management on crop productivity, economics and soil-health under various rice-based cropping system",JNKVV, Jabalpur

ISWS Best M.Phil Thesis Award
Mr. Ram Shanker, RDBB, Jabalpur on "Effect of herbicide on egg laying of Mexican beetle *Zygogramma bicolorata*"

ISWS Best Book Awards
Dr. Shobha Sondhia and Dr. Jay G. Varsheny jointly for their book in English entitled "Herbicides".

Dr. R.L. Arya and Dr. Jay G. Varsheny jointly for their book in Hindi entitled 'Kharpatwar rabhandan [Weed management]'

Young Scientist Award
M.T. Sanjay, UAS, Bangalore

General Body Meeting:

The General Body Meeting of the ISWS was held on 25th Feb., 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 (M.P.)

Vice-President
Dr. C.T. Abraham, KAU, Kerela

Secretary
Dr. Sushilkumar, DWSR, Jabalpur (M.P.)

Joint Secretary
Dr. M.L. Kewat, JNKVV, Jabalpur (M.P.)

Treasurer
Dr. V.P. Singh, DWSR, Jabalpur (M.P.)

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 (Uttaranchal)
2. Dr. S.S. Punia, CCS HAU Hisar, (Haryana)

South Zone
1. Dr. C,Chinnusamy, TNAU, Coimbatore (Tamil Nadu)
2. Dr. Dr. R.Devendra, UAS, Bangalore (Karnataka)

East Zone
1. Dr. R.K. Ghosh, BCKVV, Mohanpur
2. Dr. Devendra Singh, RAU, Pusa Patna

West Zone
1. Dr. R.B. Patel, AAU, Annand
2. Dr. C.B. Gaikwad MPKV, Rauhri

Central Zone
1. Dr. S.S. Tomar, Gowaliar
2. Dr. A.P. Singh, IGKVV, Raipur

All the participants unanimously approved the new 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 support and assured the members to work with full zeal and enthusiasm without favour to any body for the progress of the society. Dr. Sushilkuamr, Secretary, ISWS apprised the house about activities carried out by the EC during 2008-2010. Dr. V.P. Singh, Treasure of ISWS read out the receipt and expenditure during the tenure. It was unanimously approved by 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 issue of Indian Journal of Weed Science being published by other factions of society in the larger interest of members to avoid confusion among the scientific community.

There was detailed discussion in the meeting about the publication of journal of the society. This proposal was turned down by the majority. 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 journals 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 by the society retuned 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 appealed for the approval to delete the same from the life membership list so that time and money of society will be saved. It was decided in GB that last effort should be made to update the existing address of ISWS members. The addresses, which will not respond will be dropped permanently from the list.

4. Taking approval of GB to enhance the membership fee

After detailed discussion, GB approved the membership feed 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**	**2300**	**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 3 years for effective progress of the society by the EC.

National consultation on biological control of weeds

A consultation programme was organized on 17-18 March, 2010 at this nodal centre for weed research in India with the view of encouraging the interactions among the scientists and subject matter specialists in the field of biological control of weeds. The programme was attended by renowned entomologists and plant pathologists having vast experience in the field of biological control of weeds. The entire programme was spread into three technical sessions over two days. On the onset of this programme, Dr. C.D. Mayee a renowned plant pathologist and the Chairman of ASRB was felicitated and welcomed by Dr. Jay G. Varshney, the Director, DWSR. In his inaugural address Dr. Mayee, chief guest of this programme was very much straight forward to mention the importance of weed management in food security. At the same time he was also concerned about biodiversity. He advocated the use of certified seed to avoid the weed contamination. According to him the understanding on the mechanism of herbicide tolerance within weeds can well be utilized for further research to combat the weed menace.

In the Technical Session – I on "Policy issues relating to biological control of weeds", Dr. Jay G. Varshney, Director, DWSR presented his lecture on "Challenges in weed science". He reviewed the importance of weed management in maintaining the quality and quantity of yield of the crops. One of the key points of his talk was the invasion of alien weeds, their sources and the means of their management. In this context he explained the successful progress of National Invasive Weed Surveillance Programme being run by the Directorate in 10 states of the country. Dr. Varshney also emphasized on weedy rice as the future threat in rice production and emphasized on its control right at this early stage. Mr. Selvaraj, GM, NABARD, had his presentation on the "Role of NABARD in the microfinance for agriculture and related small scale industries". Dr. C. T. Abraham, Prof. and PI, DWSR Centre, KAU, Kerala; Dr. C. Chinnusamy, Prof. and PI, DWSR Centre, TNAU, Tamil Nadu; Dr. C. Kannan, Senior Scientist, DWSR, Jabalpur; Dr Shreeramkumar, Senior Scientist, NBAII, Bangalore; Dr. Bhumannaver, principal scientist, NBAII, Bangalore and Dr. Sushil Kumar, Senior Scientist, DWSR, Jabalpur shared their experiences on the effective uses of different microorganisms to control weeds. Dr. R.J.Rabindra, Director, NBAII explained different policy issues and strategies in classical biological control of weeds in India.

Recommendations from the consultation programme

1. The consultation group realized that there was so far no successful recommendation on biocontrol agents especially on the pathogens. In this context the following recommendations are given:
   a. There should be intensive research to identify the locally available appropriate plant pathogens for biological management of major weeds, especially the weeds of non cropped areas like mikania, water hyacinth, parthenium, etc.,
   b. The import of successful pathogens from the origin of centre of the invasive weeds should be considered on priority basis
   c. Research on the adaptability issues of the pathogens which has been successfully tested under controlled conditions should be intensified
   d. Research on the possible use of secondary metabolites of the pathogens as direct herbicides may be initiated on priority basis
   e. Steps needed for the registration of *Zygogramma bicolorata* for the management of *Parthenium* spp and *Neoehetina* spp recommended for the management of water hyacinth should be taken up immediately
   f. Studies on better formulations suitable for application of the biocontrol agents in different target areas like water, aerial spray and soil application have to be undertaken
2. Studies on host plant resistance against parasitic weeds may be intensified
3. Possibilities of introduction of cash crops like lotus, makhana and singada in the aquatic environments to suppress water hyacinth may be explored

4. The consultation group strongly felt the need to strengthen the number of entomologists and pathologists in the Directorate and DWSR centres, so that the research on biological management of weeds can be intensified
5. Multidisciplinary approach involving all the stakeholders may be followed for intensification of research on the different aspects of biological weed management
6. Collaborative studies between different labs working on biological management of weeds may be facilitated by the Directorate and may be sent for funding to various agencies
7. NABARD may be approached for funding of field demonstration of biocontrol agents successfully tested under controlled conditions
8. Issues related to import of biocontrol agents from the centres of origin of the weeds may be taken up at the highest level so that there is no undue delay in the entire process
9. Weed models of major weeds already established and also the identified weeds under NIWS programme may be developed so that a suitable action plan for the management may be evolved

Biological weed management programme may be suitably integrated with the other management strategies so that a total integrated weed management package can be developed.

XIX Biennial Workshop of DWSR Coordinating Centres

The XIX Biennial Workshop of Coordinating Centres of Directorate of Weed Science Research was organised at IGKV, Raipur, Chhattisgarh on February 23-24, 2010. Shri P. Joy Oomen, Chief Secretary, Govt of Chhattisgarh inaugurated the function. Dr. M. P. Pandey, Vice-Chancellor, IGKV, Raipur chaired the inaugural session. Dr. Jay G. Varshney , Director, DWSR made it clear in his address that creation of awareness on weed control among the farmers is indispensable to solve food security problems in the country. He mentioned to give greater emphasis on management of invasive alien weeds and weedy rice, weed management under rainfed agriculture and under climate change. Sh. K.S. Iyengar, Joint Secretary, NCPH, Ministry of Agriculture, Govt. of India and special guest of this programme mentioned the essence of new technology. Dr. M. P. Pandey emphasized on research in weed management under rainfed rice ecosystems. Chief Guest, Shri Oommen in his address viewed that there is need for developing ecofriendly ways of weed management. The solution to problems need to be effectively communicated to the tribal farmers who are moving forward to adopt new technology and organized agriculture.

The workshop was spread over 3 technical sessions and the salient research findings and recommendations of each technical session were discussed in plenary session. Dr. M. P. Pandey, Chairman of the session, suggested to initiate studies on exploitation of genetic variability on weed suppression and also to work on GM approach. Dr D.P. Singh, Co-chairman of the session expressed his happiness on new research proposals particularly on the effect of climate change and herbicide residues in food chain. Finally Dr R.P. Dubey, in-charge of the coordinating unit, DWSR, Jabalpur proposed the vote of thanks.

International weed news

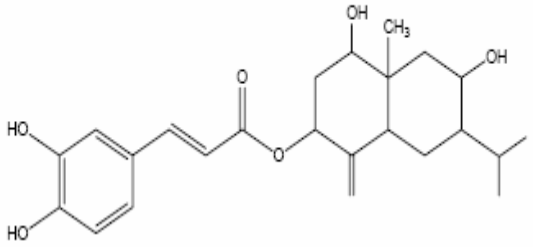
Acetochlor premix formulation with three modes of action

Monsanto Co. has registered TripleFLEX Herbicide for the 2011 crop season in US. This new corn herbicide, a mix of acetochlor, flumetsulam and clopyralid, contains three modes of action, with a flexible window of application in one product. The product will control a broad spectrum of grasses as well as small and large seeded broadleaf weeds such as pigweed, lambsquarters, waterhemp, velvetleaf, and ragweed species.

A new allelochemicals from *Inula falconeri*

A group of scientists from Korea, Japan and Pakistan led by Dr. In-Jung Lee of School of Plant Biosciences, Kyungpook National University, Daegu, Korea has identified through bioassay guided isolation an allelochemical, eudesmane-type sesquiterpeniod, 3β-caffeoxyl-β1,8α-dihydroxyeudesm-4(15)-ene (**1**), from an endemic plant species growing in the Himalayas. In our search for the bioactive subfraction, the hexane one was highly significant, showing 100% inhibition of lettuce seed growth at 100 ppm while other subfractions (chloroform, ethyl acetate, butanol and water) exhibited inhibitory to stimulatory allelopathic effects. The bioactive hexane subfraction was subjected to

Figure 1. Structure of compound 1.



chromatographic techniques, using lettuce seeds (*Lactuca sativa*) as indicator species to reveal the bioactive allelopathic fraction. This resulted in the isolation of compound **1**, whose structure was elucidated through NMR techniques. The compound presented 92.34% inhibitory effect on the growth of lettuce at 500 ppm. Further field level experiments may help develop an environmentally friendly herbicide from this lead.

(Source : *Molecules* **2010**, ***15***, 1554-1561)

Future Events

7-13 August : Parthenium Awareness Week.

DWSR will actively observe it through various programmes and activities at national level. You are also requested to observe it. For further details: Dr. Sushilkumar, Pr. Scientist (Entomology), DWSR, Jabalpur. (**sknrcws@gmail.com**)

30-31 August, 2010 : National Consultation on Weed Management under Moisture Stress Conditions,

Jointly organized by Central Arid Zone Research Institute, jodhpur, Rajasthan and Directorate of Weed Science Research, Jabalpur (MP). Contacts: Dr. Jay G. Varshney, Director, DWSR, Jabalpur (**varshneyjg@gmail.com**) and Dr. M. M. Roy, Director, CAJRI, Jodhpur (**director@cazri.res.in**).

10-12 August 2010: New Zealand Plant Protection Society Conference, New Plymouth, NEW ZEALAND. **http://tinyurl.com/ygtvzcc**

16-20 August 2010: **9th International Symposium on Adjuvants for Agrochemicals**, Freising-Weihenstephan, GERMANY. **http://tinyurl.com/yd5beya**

14-17 September 2010: 6th Neobiota Conference, "Biological Invasions in a Changing World - from Science to Management," Copenhagen, DENMARK **http://cis.danbif.dk/neobiota2010**.

26-30 September 2010: 17th Australasian Weeds Conference Christchurch, NZ. **www.17awc.org.**

October 2010: 8th International Workshop on Biological Control and Management of *Chromolaena odorata* and other Eupatorieae and Workshop on Management of *Parthenium hysterophorus*. Nairobi, Kenya. Contact: C. Zachariades, ARC-PPRI, Private Bag X6006, Hilton, 3245, South Africa. **ZachariadesC@arc.agric.za**.

11-18 October, 2010 : Directorate of Extension, Ministry of Agriculture, GOI sponsored eight days National Model Training Course (MTCs) on "**Recent Advances in weed management**" for Officers of State Development department (Agriculture/Horticulture/Animal Husbandry and Fisheries). Organizer : DWSR, Jabalpur, INDIA. Training coordinator: Dr. P.K. Singh, Principle Scientist, DWSR (**drsinghpk@gmail.com**).

23rd Asian-Pacific Weed Science Society Conference – Destination Announced!

The Asian-Pacific Weed Science Society (APWSS) Conference will be held at the Sebel Cairns, in North Queensland, from 25 - 30 September 2011.

The Weed Society of Queensland (WSQ) and the Council of Australian Weed Societies (CAWS) proudly support the Conference.

The conference returns to Australia for the third time in 2011 and will focus on the theme "Weed Management in a Changing World". There will be presentations on the role of genetically modified organisms in weed management, climate change, water availability, biosecurity, population growth and the utilisation of weeds.

The Conference will provide a forum in which results can be shared, information disseminated to agricultural researchers and cooperation encouraged.

Field trips will be organised to demonstrate weed issues affecting North Queensland and activities undertaken to reduce their impact. These will be selected based on their applicability throughout the Asia Pacific region.

There will be ample time available for networking and discussions during breaks in the program and through a social program incorporating a Welcome reception, Conference dinner and Field Trips.

For more information or to register at discounted rates please visit the website www.apwss2011.com.

CIRCULAR

THIRD INTERNATIONAL CONFERENCE ON PARTHENIUM: ICP-2010

Chief Patron: Prof. R.S. Paroda, Chairman, TAAS
Patrons:
1. Prof. C.D. Mayee, Chairman, ASRB
2. Prof. P.L. Gautam, Chairman, NBA, Govt. of India
3. Prof. S.N. Puri, Vice Chancellor, CAU, Imphal

International Organizing Committee
Chairman : Prof. S. Ayyappan, Secretary, DARE & Director General, ICAR
Co-Chairman : Prof. H.S. Gupta, Director, I.A.R.I., New Delhi
Conference Chair : Prof. M. Mahadevappa, Ex. Chairman, ASRB
Organizing Secretary: Dr. R.D. Gautam, Professor of Entomology, IARI, New Delhi

National Organizing Committee
Chairman: Dr. H.S. Gupta, Director, IARI, New Delhi
Co-Chairman: Dr. Jay G. Varshney, Director, DWSR, Jabalpur
Organizing Secretary: Prof. R.D. Gautam, IARI, New Delhi

THEME:

1. Global view of Parthenium in different countries.
2. Importance of Parthenium in Agric., Human & Animal Health, Environment, Biodiversity and invasive weeds.
3. Parthenium management strategies: Competitive plants, Pathogens, Insects, Chemical, Manual, IWM, etc.
4. Parthenium linked diseases, their diagnosis and management.
5. Utility aspects of Parthenium – medicinal, compost, insecticidal property, etc.
6. Coordinated strategy for involvement of voluntary organizations, individuals and National and International Government agencies for effective management of Parthenium and biodiversity conservation.
7. Course of action on the formation of International Working Group on Parthenium.

VENUE : Indian Agricultural Research Institute, New Delhi

CONFERENCE DURATION : **December 8-10, 2010**

CONTACT:

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E-mail: profgautam@gmail.com, ramdass.gautam @ yahoo.com,

Important web sites related to weed science

http://www.nrcws.org – Directorate of Weed Science Research, Jabalpur, India

www.ISWS.org.in – Indian Society of Weed Science, Jabalpur, India

http://www.weeds.iastate.edu/mgmt/qtr97-1/weedid.htm- For information of weed identifications

www.ewrs.org – European weed research society

http://plantsciences.ucdavis.edu/iws-International weed science society

http://www.weedcenter.org/management/weed_id.html - Centre for Invasive plant management

http://www.wssa.net/- Weed Science Society of America

The **ISWS Newsletter** is an electronic quarterly publication to foster better communication and give information to our members and others in the country interested in weed science. Information for publication in the ISWS Newsletter may be sent to the Editor at the following address:

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