



PROCEEDING OF THE 6th CWSS INTERNATIONAL CONFERENCE
ON
“AGRICULTURAL INNOVATIONS FOR SUSTAINABLE
DEVELOPMENT GOALS WITH SPECIAL FOCUS ON
NATURAL FARMING” (AISDGONF-2023)

The 6th CWSS INTERNATIONAL CONFERENCE ON “Agricultural Innovations for Sustainable Development Goals with Special Focus on Natural Farming” (AISDGONF-2023) was held during 30th September – 02nd October, 2023 at Farmers’ Academy & Convention Centre (FACC), Kalyani, Nadia, West Bengal, India organized by the Crop and Weed Science Society (CWSS Registered under West Bengal Act XXVI of 1961 --Registration No S/IL/24559 of 2004-2005 and Website: [http:// www.cwss.in](http://www.cwss.in) / www.cropandweed.com). More than 600 delegates participated from the different states of India and also from abroad. The participants were scientists from different Institutions, corporates and NGOs; Students of different academic institutions; Technical persons of Media, Akashbani, Doordarshan, leading Newspapers & Krishi Patrikas and Farmers of different districts of West Bengal besides the dignitaries of various academic sectors.

The Inauguration was held with the opening song by Prof. A.L.Kundu, Prof. Dr. Anupam. Pariari and Dr. Anannya Ghosh, CWSS life members followed by Welcome address by the President of the CWSS & Organizing President AISDGONF-2023, Prof. R. K. Ghosh, Address by the Guest of Honour, Dr. Virender Kumar, Deputy Platform Leader, IRRI, Philippines; Dr. Sudhanshu Singh, Director, South Asia Regional Centre, IRRI, Philippines; Mr. Partha Sengupta Director of Agriculture, Government of West Bengal; Prof. Nilotpal Ghosh, Former Dean, WBUAFS; Prof. B. Chakraborti, Project Director & Researcher, Department of Fisheries, Bangladesh and Prof. Dr. Te-Ming Paul Tseng, Treasurer, International Weed Science Society, MSU, Mississippi, USA; The Chief Guest Prof. Dr. D. Basu, Vice Chancellor, UBKV delivered an address before the Presidential Address Prof. Jayanta Tarafder, Director of Research & acting Vice Chancellor, BCKV, India. The Secretary CWSS & Organizing Secretary AISDGONF-2023 Prof. A. K. Basu delivered a vote of Thanks. In this session the presentation of CWSS Award (Gold Medal; Fellow; Farmers award; Recognition and Felicitations); followed by the Last Volume of Journal of Crop and Weed and CWSS Newsletter, 6th International Conference Souvenir and Books of ABSTRACT were also released. The Opening Ceremony was coordinated by Dr. Kusal Roy, the Technical Convener of the “AISDGONF-2023” and the Executive Editor of the CWSS JOURNAL, Journal of Crop and Weed. The Plenary lecture after the Inauguration was delivered by Dr. Sudhanshu Singh, Director, IRRI South Asia Regional Centre, IRRI Philippines. Prof. M. Ghosh, Agronomy, BCKV and Dr. M. K. Bhowmick, IRRI & Joint Secretary CWSS were acted as Rapporteurs.

Dr. Sudhanshu Singh, Director, IRRI, highlighting the major concerns in rice based systems which have been facing a daunting challenge in meeting future food demand in relation to growing population, erratic climate changing scenario and occurrence of multiple abiotic stresses with special reference to South Asia. Developing and scaling the stress-tolerant rice varieties are fundamental when it comes to climate risk management in rice-

based systems. Leveraging ICT-based tools, internet of things (IoT), geospatial technologies, drones, scale-appropriate mechanization, etc. hold huge promise for engineering smart innovations and sustainable solutions to combat climate change. He mentioned that the International Rice Research Institute (IRRI) has developed a number of ICT tools, IoT solutions, and digital databases (like Rice Crop Manager, Rice Doctor, Rice Knowledge Bank, Seedcast, EasyHarvest, etc.) to support the scientific R&D needs in a holistic approach from the crop planning to the post-harvest processing phase of production. Dr. Singh urged upon initiating a concerted research and extension efforts, collaborations, networks, and partnerships for transforming agriculture and rice-based agri-food systems in a world challenged by climate change.

The Young Scientist award selection was held with the presence of eminent Judges chaired by Prof. Dr. Te-Ming Paul Tseng, Treasurer, International Weed Science Society, MSU, Mississippi, USA.

The General Body meeting of CWSS was held in the evening presided by the President CWSS Prof. R. K. Ghosh and Coordinated by the Secretary Prof. A.K. Basu. The Cultural Programme was coordinated by CWSS Life Member, Dr. Sujit Adhikary with other members of CWSS.

The International Conference was comprised of total five (5) themes having sharply different characteristic features *viz.*, Theme A: Technology outreach & Agri-Trade for convergence with farm with institute, industry, and policy makers; Theme B: Frontier areas in crop production and natural resource management with special reference to natural farming; Theme C: Horticulture as a growth engine in achieving sustainable developmental goals; Theme D: Advances in crop improvement, biotechnological approaches and biotic & abiotic stress management; Theme E: Role of farm mechanization, IT, bioinformatics, post harvest technology, big data management in agriculture, livestock farming, fisheries, sericulture, apiculture, etc.

In Theme A “Technology outreach and agri-trade for convergence of farm with institute, industries and policy makers” Prof. T. K. Maity Principal, Tripura University and Dr. Jayanta Chakraborty, President, BCC & BSED were chaired and Prof. Pintoo Bandyopadhyay, DEE, BCKV acted as Programme Coordinator. Dr. Suhrid Barik from Corteva Agriscience; Dr. Sajal Biswas of Adama India Pvt. Ltd; Dr. Nilanjan Sanyal, from BASF India; Dr. Pardeep Sagwal of Bayer Crop Science; Dr. Chakradhar Pal of PI Industry were among the leading speakers of the corporate industry; Besides from the various academic institutions oral presentations were made by talented researchers. The followings were the outcome from this session. In this Theme, presentation on Seaweed bio-stimulant for crop production as well as on evidencing how FPO-mediated market of produce fetches more profit for the farmers were of highly valuable to the farming community. A series of presentation from different leading agro-industries were made followed by an important valuable group discussion on “Convergence of Industry and Academia”.

In Theme B, a total number of seventeen (17) presentations were there including one plenary and three lead lectures which mainly highlighted management of natural resources,

combating with the changing climatic condition and judicious utilization of both traditional and non-traditional inputs to eradicate the present malnutrition status.

Theme C included six oral presentations on crops with varying nutritional status along with one plenary and one lead lecture highlighting the role of horticultural crops in alleviating social status among members of farming community. In the plenary lecture, Prof. Pranab Hazra emphasized the potential of cold-chain sector, food processing sector and their potential contribution in overall GDP of the country, and the time has come for us to shift our status from “Consumer” to “Exporter”. Some important aspects of modern day horticulture were also discussed in this session. Those lectures were focused on response of N and K fertilizers to newly developed brinjal varieties ‘Krishnakali’ and ‘Sadabahar’, effect of zero-ventilation, refrigeration and polyethylene packaging on the shelf-life and quality of mint, effects of developmental stages on *curcumin* content of black turmeric, *Carcuma caesia*, INM in ginger as intercrop with curry leaf, micro-propagation of *Aloe vera*, encourage earning while learning using organic farming at school levels, etc.

Prof. Luis Avila, secretary, IWSS and Prof. Te-Ming Paul Tseng, Mississippi State University, USA delivered their plenary lectures, wherein use of RNAi, the cutting-edge molecular technology, as herbicide and a tool for knocking out resistance related genes (PPO1 and PPO2) as well as use of safener compound (e.g. melatonin) on tomato crop may protect the plants by increasing the antioxidant activities, were nicely elucidated in Theme D. Some important presentations were also there, which highlighted pyramiding of multiple genes responsible for various stresses in rice as well as exploration of natural resistance and tomato flesh colour related mutants through marker assisted breeding programme, calmodulin-binding transcription activator in rice and their possible links with tolerance against multiple biotic and abiotic cues, effective weed control mechanisms, GI tag for aromatic rice *Gobindobhog*, performance of promising drought tolerant rice variety, Sahabagi Dhan, effective fungicides (tebuconazole, propiconazole and azoxystrobin) for controlling loose smut disease in rice, efficacy of botanicals and exogenous application of silicon for better pest management in rice leading to higher yield, production of Limonium misty blue, a cut flower through anther culture, elytral polymorphism of ladybird beetles, etc.

Conservation agriculture at present day can be employed as resource saving, profitable and sustainable technology. The conservation agriculture produced 15% more yield under wheat based cropping system. Knowledge of weed seed dynamics is a very important key to design control measures. Conventional tillage raises much more weed infestation compared to zero tillage as the berries of fruits of *Echinochloa* are broken during tilling. Weeds serve as stress indicators besides being an ecological indicator. Water hyacinth is the worst invaders of aquatic ecosystems worldwide. It was emphasized on the need to control of the noxious weed using ecofriendly bioherbicides. Use of *weed mat* is a remunerative and cost effective way for controlling of the weeds in tuber crops like taro.

In Theme E, two plenary lectures, two lead lectures, one invited lecture and six oral presentations were there, which mainly emphasized insecticide toxicity in fish, top ranking of Indian buffalo breeds in the world, sustainable utilization of fishery by-products, assessment

and forecasting technologies related to crop yield, price vitality and typical prevailing climatic situations.

The important recommendations came out of this conference are summarized as follows:

- Identification of crop cultivars having potential characteristic features to combat the erratic climate changes over the years as well as some typical management options leading to higher yield and greater possibility of revenue generation.
- Conservation agriculture for sustainable green intensification directs a better impact over conventional practices.
- Extensive green natural cultivation of diverse horticultural crops is an important viable option for nutritional security.
- Genetic manipulation and advance molecular methodologies may help in resolving various critical issues in creating bottleneck in higher yield with better quality food crops with special reference to newly generated biotic and abiotic stress due to abrupt environmental fluctuations.
- Planning and carrying out an extensive APWPM weed management require a thorough understanding of the dynamics of weed seeds.
- Development of quality breeds of different livestock and its proper management will definitely help in alleviating farmers’ income.
- Regular periodic exchange between industry and students has been suggested with regard to new products, safety and training approaches responding to pest and pathogen scenarios.
- Development of villages with all facilities and agro-industries is crucial for generating employment and income. It helps to raise the demand and quality of agricultural products. Apart from farming, agro-industries can provide jobs in rural regions for non-farm activities such as food handling, packing, processing, shipping, and marketing. Without a doubt, the agro-industries are contributing significantly to global economic growth and the reduction of poverty in both urban and rural areas and thereby increasing farmers livelihood status.

Crop and Weed Science Society (CWSS)
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