



भारतीय कृषि एवं खाद्य परिषद्
INDIAN COUNCIL OF FOOD AND AGRICULTURE

National Round Table Conference

on

Crop Residue Burning

Challenges and Solutions

24th December 2018

India International Centre | New Delhi



DELIBERATIONS

ICFA organized a conference on Crop Residue Burning, its Challenges and Solutions, which is to be taken up with Farmers, Industrialists and Government as whole. On this occasion a report titled “**Crop Residue Burning, Challenges and Solutions**” was released. The session was organized at India International Centre, New Delhi on 24th December, 2018. The conference was chaired by Hon’ble Minister of Environment and Forest, Government of NCT of Delhi, Sh. Imran Hussain.

Mr. C.P. Shoran, Executive Director, ICFA welcomed Shri Imran Hussain, Minister of Environment and Forest, Government of NCT of Delhi, Dr M. H. Mehta, Chairman, ICFA, Working Group, Dr. PVSM Gouri, Technical Assessor, NABCB, QCI and Member-ICFA Policy Thrust Group, Dr. (Ms.) Lopamudra Priyadarshini, Head CSR-PR, Sonalika Group, Dr. Mohan Ji Saxena, M.D. Ayurvet Ltd., Yudhvir Singh, Farmer Leader, Bhartiya Kisan Union, Mr. Rakesh Tikait, President, Bhartiya Kisan Union. Mr. Shoran also acknowledged Shri Imran Hussain, Minister of Environment and Forest, Government of NCT for understanding and working so devotedly towards farmer issues. “Delhi is very much adversely affected by the problems caused due to rising pollution levels in the month of October and November, which is a very severe issue to be looked upon and needs a critical way out” concluded Mr. Shoran.

Dr. M.H. Mehta, Chairman, ICFA Working Group on Eco Agriculture introduced the agenda of the upheld Round table Conference and briefed the farmer representatives, NGOs, Private Bodies, Institutions and all leading players of the sector that the main focus should be on the problem and its solution as it’s been many years struggling with the current scenario of Crop Residue Burning and its adverse impact. He said “After Green revolution

the ever Green Revolution is Eco- Agriculture comprising Scientific Revolution, not restricted to plain farming, But inclusive of Eco- Friendly Organic Technique, easily and quickly adoptable by Farmers emphasizing on Agro Farm waste i.e. Crop Residue utilization, which is being second and appreciated by Prof. M.S. Swaminathan as well.” Since, farmers do not have practical solution for crop residue. Hence, profitable technique implementation was the main key to resolve this issue and without demonstration of same, farmers could not be convinced. Mr. Mehta also stated that awareness about damage occurring to environment through paddy stubble burning should be spread. Scientific utilization of Agro-wastes could be an effective way to manage huge agricultural waste for which the technology was yet to be stretched at global level. According to him decomposition of paddy residue through Microbial Enzymes could be a possible solution for stubble burning issue and concluded by saying “*India is in ideal situation to jump into this area and converting the biggest problem into the biggest opportunity*”.

Shri. Imran Hussain, Minister of Environment and Forest, Government of NCT released the Report on **Crop Residue Burning: Challenges and Solutions** and congratulated Team ICFA for its incredible contribution towards agriculture and farmers by bridging the gap between farmers and policy makers. Mr. Hussain remarked “Agriculture is the base of our economy as it is employes more than half of our population. India is agrarian nation and agriculture majorly contributes to our economy, culture and daily lives. It is an integral of our families and tradition. We look up to farmers with due respect as they have preserved our culture, which is foreseen in villages also.” He stressed that already due to increased population and urbanization agricultural land area was decreasing day by day. Also, farmers’ competition for their respective farm produce had paved way to

the unmindful use of artificial chemical, which was further leading to increased pollution. Mr. Hussain also stated that budget allocated by government to farmers to procure modern technology to fight crop residue burning issue was insufficient and did not reach timely to each and every farmer. Mr. Hussain extended all his support to farmers and said that farmers are the backbone of our economy, and thus requested farmers to follow government policy, regulations and instructions to combat the adversity of crop residue burning. Mr. Hussain concluded by congratulating Team ICFA and all the dignitaries presented there for putting up their best foot forward for the community welfare.

Dr. Mohan Ji Saxena, M.D. Ayurved Ltd. focused on the primitive and organic ways of farming and emphasized on preventive approach towards stubble burning issue. He said “Western model of economy has failed and agriculture is in crisis globally. 800 million people are dependent on agriculture, hence, farmers need to be respected. As it is the farmers, who are feeding 130 crore people of the country, along with creating the employment opportunities and majorly contributing towards the GDP of the Country. He said that Humanity is in severe danger as soil, water and air is contaminated with hazardous pollution.” People of Delhi were seen wearing masks everywhere, coughing out diseases. Even the scientists validated the same and there was urgent need to preserve Environment. Mr. Saxena said that just by spreading awareness about adverse effects of stubble burning, Sonipat witnessed 90% less stubble burning this year and Ayurved is committed to eradicate the problem of crop residue burning in Punjab & Haryana by 2020 by extending its work to 5000 acres in 2019 and so on. Mr. Saxena said that Stubble Burning would end the same way as small pox & polio from the world, But for this support from all spheres was needed and ‘Common Sense Agriculture’ should be practiced by controlling human greed & respecting nature at its best.

Dr. PVSM GOURI, Assessor, NABCB, QCIn and Member-ICFA Policy Thrust Group gave the insightful data analysis on agriculture status. “190 million Hectare land in India is under Agriculture contributing 17% to the GDP. Eco Agriculture is most suitable for India leading to food security and sustainability of the farmers. For better performance our farmers need a transition from conventional farming methods to Eco agriculture. Take the best of traditional farming/organic farming and combine them with modern scientific knowledge by local and low-tech methods. Large injections of traditional inputs like chemical fertilizers and pesticides are not required, hence to focus on local and regional solutions to increasing crop yields by organic farming methods.” Eco agriculture could be considered under the SKILL DEVELOPMENT MISSION. Policy Thrust Group plans to promote Eco Agriculture by drawing out policy guidelines, GOI & State Government suggested action plans & action plans led by ICFA for NGOs, farmer bodies and certifying agencies.

Dr. (Ms.) Lopamudra Priyadarshini, Head CSR-PR, Sonalika Group, quoted that no doubt Eco-Farming is the future of Farming. Sonalika is working on Crop Residue Management (CRM), how to address CRM, creating awareness about sustainable farming through conservation agriculture. “Sonalika is working for women, Children and Environment under its CSR division. Crop Residue Management Project covers Stubble Burning Issue and resourceful use of Stubble.” Ms. Priyadarshini stated that there was no scientific proof that stubble burning was the major reason of rising pollution in Delhi region in the months of October, November & December, though, it may be one of the many reasons. She advocated that problems faced by the farmers should be the main focus. Sonalika had adopted 26 villages and was working to make Haryana state complete residue burning free in next 5 years with the help of research & implementing agencies like CIMMYT, local stakeholders, Corporates, PSUs, Embassies

and various NGOs. For their vision, Sonalika was supporting villages by providing Turbo Happy Seeder, Zero Till & SMS in every village. Constant awareness & capacity building was being undertaken in every village since July 2018. She underlined that in-situ management of crop residue through conservation agriculture based system contributed to several agricultural schemes/mission of Govt. of India.

Dr. Deepti Rai, Manager Research & Development, Ayurvet Ltd., presented the Ayurvet's Initiatives to prevent stubble burning. She highlighted that stubble burning was driven by economic consideration. Some of the initiatives of Ayurvet Research Foundation to remediate stubble burning issue were zero-tillage (started in 2016), awareness program (2017), NABARD supported awareness program in 332 villages in Sonapat district of Haryana (2018), decomposition of paddy through microbial enzymes (Re-life) (2018), alternate usage of paddy stubble for animal feeding and hydroponics wheat nursery. She brought to light the resistance of farmers in adoption of new technologies and were fearful of using microbial mixture, which they thought might spread diseases. Another apprehension in adoption was decomposition of paddy straw using microbial enzymes being a labor intensive operation (spraying & collection of soil samples). Urea application was also seen as additional cost. Multiple usages of Rotavator / Cultivator / additional irrigation/ labor were also time consuming process. She further voiced that farmers would be optimistic and majority would adopt if the results were good. Further, Dr. Rai expressed gratitude to NABARD Officials, Haryana Govt Officials (DC/ SDM, Sonapat, KVKs Scientists, Participating Farmers, Dr. Mehta and his Gujarat Life Science Team, Dr. M J Khan and ICFA Team & Ayurvet Management for joining hands for this initiative.

Mr. Eakpreet Singh, Thapar Institute, Patiala presented his views on crop residue management

and impact of Re-Life on crop residues. He shared that experiment was conducted to know the effect of Re-Life on rice straw. It was divided into 3 sections control, Re-life, Re-Life with small amount of urea. Re-Life expectedly converts Rice straws to bio compost and improved soil health. Further he shared that sprinkling a small quantity of urea expedites the process of decomposition. After observation, analysis and comparison of result after 20 days trial, the improvement in both nitrogen and organic carbon content of the soil was recorded. It was likely that over a period of time, there would be more improvement in nitrogen and organic carbon in soil. Hence, it could be concluded that Re-life clearly helped in decomposition of crop residue and improved soil nitrogen and organic carbon content.

Mr. Yudhvair Singh, Farmer Leader, Bhartiya Kisan Union brought to the light that researches and studies have shown that crop residue burning contributed only 8% of total pollution of capital region. Regarding this pollution concern, the hue and cry was being created for on stubble burning while not considering the remaining 92% causes of hazardous air quality. He opined that reality check need to be done to find the solution for increasing air pollution of Delhi. He further highlighted that in order to utilize stubble instead of burning farmers need to bear extra Rs. 3000 per acre but are not in a condition to bear this cost. "Farmers have limited time between paddy harvesting and wheat sowing and thus have to work under strict timelines. They do not have the leverage of investing time to adopt time consuming scientific stubble burning solutions." Mr. Singh also emphasized on cash subsidy for farmers to resolve stubble burning issue. "Chemical farming needs to be put to stop, which rather is being pushed and endorsed by government itself. Foreign companies for their profit are influencing policies for Indian farmers and agriculture." He further underlined that Indian farmers are well aware and experts of eco-agriculture. Crop residue could be put to use as

animal feed and in other ways. Government should help farmers in improvising the traditional farming to modern agriculture. Farmers had been working on zero budget farming since last 25 years under a movement too.

Ch. Pushpender Singh, President, Kisan Shakti Sangh stated “There is 14% drop in Punjab & Haryana in stubble burning incidents, and is stopped after November but still Delhi air quality index continues to be at its worse. Farmers are unfairly put to blame for contaminating air in Delhi. We all need to contemplate the actual reasons and solutions to declining air quality. Farm machines being used to tackle stubble operates on diesel, which in return adds to air pollution“. He said that farmers know and have been using old traditional procedure to recycle and resourcefully use stubble. Labor shortage was also witnessed by farmers, along with inadequate MSP, in such a scenario bearing cost of stubble incorporation was an impossible task for already burdened farmer. He suggested diverting MNRGA to agriculture for paddy stubble chopping by Government. Government should resourcefully allocate money for pollution control, as medical bills were also on rise due to pollution, which could not be ignored. Subsidy on fertilizers and farm machines too was also burdening soil and farmers, rather government might utilize the same funds to raise the MSP. He also stressed that global warming was on rise, which would eventually adversely impact food security in coming decades. Thus, farmers need to be supported aptly to fight the current situation of Crop Residue Burning.

Mr. Krishnaveer, thanked ICFA for organizing the conference. He stressed that farmer and stubble burning was not the sole reason of rising air pollution, if so, why not Noida and Greater Noida air quality was as badly affected as Delhi. He further affirmed that results of waste decomposer were excellent and said that focus should not be limited to just stubble, rather soil fertility improvement and overall soil health to be kept in

mind for long run. “Harvester is inefficient to put to use for stubble. Manual extraction of stubble again requires more labor. Waste decomposer seems to be the effective solution, but traditional & natural technique of stubble incorporation remains the best way out as of now“. He advocated that chemical science model would only lead to problems in future. ‘Old is Gold’ and Indian Agriculture couldn only be improved by going back to its roots and adapting old natural model of traditional farming.

Sh. Jagjit Kochhar, Economic advisor, PHD Chambers of Commerce, said “It is an era of economic war. We need to look into the root cause of pollution caused by stubble burning and pollutant content of stubble, if any. We need to control and check the content and component of imported fertilizers. We need to make a decision to adopt organic farming to save the economic reserve as well as our health. MSP driven production will keep on adding to more problems because we will be only dependent on chemical fertilizers.” He further opined that government subsidy should only be given to marginal farmers, this would help to resolve over production and enhance the food quality as well. Indian could be the organic bowl of the world, owing to its natural resources and knowledge of traditional agriculture. “We can compete with world in agriculture, where our nation’s entire population can be put to use, we just need to push ourselves to that thrust“. He further stressed that forensic investigation of farm chemicals should be undertaken to check their chemical content. If it would have been a problem of Stubble Burning by Punjab and Haryana, then why even Bangalore, Kanpur, along with other cities were struggling with degrading air quality. It was not because of stubble burning but increasing vehicles on roads and mushroomed up unregulated restaurants were adding on more to air pollution than stubble burning.

RECOMMENDATIONS FROM THE COMMITTEE

1. Crop residue burning is a catastrophic practice, resulting in not only affecting air quality but also loss of nutrients from soil. In order to curb this practice, there is a need to organise awareness campaigns to inform farming community about ill effects of crop residue burning and a practical way of utilizing crop residue, particularly paddy stubble. Owing to its deep penetration, KVKs at district levels should be involved for aggressive campaigning, especially to make them aware about good and bad microbes in the soil.

2. There are various ways of utilizing crop stubble for good, though, one of the best is to decompose the residue and incorporate it into the soil to improve soil quality. The most effective way to convince farmers is by demonstrating the methods as well as results, Government should earmark funds to organise demonstration, especially in the states largely affected by the malpractice.

3. Several presentations and demonstration trials at farmer's field were presented such as:

- (i) Dr. PVSM Gouri – Working Group – Eco Agriculture – ICFA
- (ii) By AYURVET Foundation team along with The Science Ashram / Gujarat Life Sciences and ICFA – Eco. Agri Working Group at farmers' fields in Sonapat and Panipat area- Haryana.
- (iii) By Thapar Institute – Patiala with Gujarat Life Sciences.

- (iv) Actual field experiences shared by Dr. Holy Little for California – USA, Prof. Li Ji – China and Dr. Dorji – Bhutan.

Based on these presentations and discussions, it was concluded that:-

- a) In-situ treatment and conversion of crop residue (such as rice stubbles) is a doable and attractive alternative to crop residue burning.
- b) A two step process, i.e. using machines like ROTAVATOR, MULCHER etc. followed by Multi Microbial Mixture sprays (Such as Re-Life) has demonstrated advantages – like soil health improvement, saving in the cost of inputs like fertilizers, environmental safety and direct economic advantage to the farmers.
- c) There is a need for massive adaptation of this method for the benefit of all and converting a big problem in to a great opportunity.

4. In order to make farmers self-reliant, it is essential that subsidies be provided only to marginal farmers and simultaneously to deregulate the agricultural market and not to support them with MSP. This requires a strategic plan for gradual implementation to transform farmers into agripreneurs.

5. One of the important analyses that came to light was that crop residue burning is one of the factor adding to poor air quality but is not the sole factor. However, a solution which benefits the farmers economically & easily implementable at the same time is the best incentive to convert the problem in to an opportunity.

6. As requested by Govt. of Delhi, a proposal will be worked out for large scale adaptation of this two step process i.e. (a) Making available machines at 80% subsidized rates (b) Microbial spray for counting Agro waste – Making available to the farmers at 80% subsidies rates. Such as model will also be made available to other State Governments, as well as GOI.

7. It is strongly recommended that GOI should immediately take a policy decision and announce special project fund in a large way to help farmers adopt this and convert the big problem in to a higher opportunity. It will also form a big step to bring Eco Agri Revolution or Ever Green Revolution.

Glimpses of RTC Crop Residue Burning



List of Participants

1. **Sh Imran Hussain**, Hon'ble Environment Minister – Government of Delhi
2. **Dr Anwar Ali Khan**, OSD to Environment Minister – Government of Delhi
3. **Shri Ashok Bajpai**, Member of Parliament
4. **Shri Anand Bhaskar Rapolu**, Member of Parliament
5. **Dr MH Mehta, Chairman** – Gujarat Life Sciences
6. **Dr PVSM Gouri, Technival Assessor** – NABCB Quality Council of India
7. **Prof AC Vashney**, Former Vice-Chancellor DUVASU
8. **Dr MJ Saxena**, Managing Director – Ayurved
9. **Dr Deepti Rai**, Manager R&D – Ayurved
10. **Mr PK Shukla**, Manager CSR – Ayurved
11. **Mr Tarun Upadhyay**, Executive – Ayurved
12. **Mr Ami Lal Meena**, Co-Founder & Director – Grow Well Organic & Eco Products
13. **Mr Indranil Das**, Vice President, Asia – Agrinos India
14. **Dr RP Singh**, Executive Secretary – Indian Agricultural Universities Association
15. **Dr Dinesh Chauhan**, CEO – IACG
16. **Dr Soumitra Das**, Director- South Asia – International Zinc Association
17. **Dr (Ms.) Lopamudra Priyadarshini**, Head CSR-PR – Sonalika Group
18. **Mr Arvind Saini**, GM Marketing – Sonalika Group
19. **Mr Tushar Pandey**, Advisor – IPE-CKD
20. **Mr Jitendra Mandrah**, India Manager – FoodPLUS GmbH
21. **Mr Pradeep Bharti**, Technical Key Account Manager India – Global GAP
22. **Mr Japinder Wadhawan**, Managing Director – Raftaar Engineering
23. **Mr Surat Singh**, Managing Director – Krishak Bharti Producer
24. **Mr Amit**, CEO – Krishak Bharti Producer
25. **Dr Prija Ponnai**, International Registration – Crystal Crop Protection
26. **Dr Harinder S**, Director – Excellent Enterprise
27. **Mr DS Rana**, Chairman – Rana Group
28. **Mr Aditya Khanna**, Managing Director – Yog Capital
29. **Mr NP Singh**, General Manager – Gomselmash
30. **Mr Dhananjay Dave**, President – BVG
31. **Shri Chand Sharma**, Horticulture Unit, Environment Department – GNCTD
32. **Dr VV Sadamate**, Former Adv Planning Commission – Government of India
33. **Dr IV Ramanuja Rao**, CEO – Centre for Indian Bamboo Resource and Technology
34. **Mr Barjinderjit Singh**, DY. General Manager – CNH Industrial (Farmer Network Holland Fiat)
35. **Ms Namrata Malik** – Advocate

36. **Col (Rtd) Ajay Purohit**, CLO – Superkisan
37. **Mr Rajiv Kumar**, CTO – Superkisan
38. **Dr Subimal Bhattacharya**, Managing Director – JOOKTO
39. **Mr Sandeep Vats**, Vice President – JOOKTO
40. **Mr Eakpreet Singh**, Student – Thapar Institute
41. **Dr Ashwini Kumar Singh**, Joint Director, CCS – National Institute of Animal Health, Baghpat
42. **Dr Amresh Pandey**, Scientist – Birsa Agriculture University, Ranchi
43. **Dr Jagjit Singh Kochar**, Director – Fishbiotech (P) Ltd.
44. **Dr Khushnood Ali**, Head, Research Division – AARDO
45. **Mr Rakesh Tikait**, President – Bhartiya Kisan Union
46. **Mr Yudhvir Singh**, General Secretary – Bhartiya Kisan Union
47. **Sh Krishan Bir Chaudhary**, Chairman – Bharat Krishak Samaj
48. **Chaudhary Pushpendra Singh**, President – Kisan Shakti Sangh
49. **Mr Bijender Singh Dalal**, Farmer Leader – Pragatisheel Kisan Club
50. **Mr Prem Singh Gehlawat**, Farmer Leader – All India Kisan Mahasabha
51. **Mr Abhijeet Thakur**, Reporter/Copy Editor – E TV
52. **Mr Maha Singh Chauhan**, Progressive Farmer
53. **Mr Surat Singh Janghu**, Farmer Leader
54. **Mr Ranbir Singh**, Progressive Farmer
55. **Mr Satish Kumar**, Progressive Farmer
56. **Mr Harsh Chand Verma**, Farmer Leader
57. **Mr Rishi Vajpayee**, Progressive Farmer
58. **Mr Ram Kumar Solanki**, Progressive Farmer
59. **Mr Sunil Solanki**, Progressive Farmer
60. **Mr Ramesh Chauhan**, Progressive Farmer
61. **Mr Harakh Chand**, Progressive Farmer
62. **Mr Mohit Tomar**, Progressive Farmer
63. **Mr CP Shoran**, Executive Director – ICFA
64. **Mrs Mamta Jain**, Director – Government Affairs – ICFA
65. **Dr Sucheta Arora**, Director - Knowledge Management – ICFA
66. **Mr Ankit Kumar**, Assistant Manager- IT – ICFA
67. **Ms Jasmeet Kaur**, Assistant Manager - Events & Communications – ICFA



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