No. 10-1/2014-OS/CA
Government of India
Ministry of Agriculture
Department of Agriculture & Cooperation

Krishi Bhavan, New Delhi
Dated: 21st November, 2014

To

ICAR, ICRISAT, APEDA, IOPEPC, NIN,
ANGRAU, States (AP, Gujarat, Karnataka and Maharashtra),

Sub: Minutes of the Brainstorming Session on "Minimizing Aflatoxin Contamination in Groundnut" held on 13.11.2014 at Krishi Bhavan - reg.

Sir/ Madam

I am directed to forward herewith a copy of the minutes of the Brainstorming Session on "Minimizing Aflatoxin Contamination in Groundnut" held on 13.11.2014 at Krishi Bhavan for your kind information and necessary action please.

Yours faithfully

(T.P. Singh)
Asstt. Director (CA)

Encl. As above

Copy to:

1. PPS to Addl. Secretary (AKS), DAC, Krishi Bhavan for kind information
2. PPS to Agriculture Commissioner, DAC, Krishi Bhavan
3. PPS to Joint Secretary (OS), DAC, Krishi Bhavan
4. Other Officials of DAC, Krishi Bhavan & Shastri Bhavan
5. Director, Directorate of Oilseeds Development, Hyderabad

Proceedings of the Brainstorming Session on "Minimizing Aflatoxin Contamination in Groundnut" held on 13th November, 2014 at Acharya Jagadish Chandra Bose Hall, Krishi Bhawan, New Delhi

The Brainstorming session on "Minimizing Aflatoxin Contamination in Groundnut" was organized at Krishi Bhawan under the Chairmanship of Dr. J.S. Sandhu, Agriculture Commissioner. At the outset Dr. Anupam Barik, ADC (Oilseeds) welcomed the participants and gave a brief background and objective of convening the Brainstorming Session. The Agriculture Commissioner in his opening remarks emphasized on the importance of developing a comprehensive action plan to manage aflatoxin contamination in groundnut on priority that can be adopted by all stakeholders. The list of participants is appended.

Dr. T. Radhakishnan, Director, DGR, Junagarh in his presentation brought out the complexity of managing aflatoxin contamination in groundnut. He pointed out a number of technologies cum recommendations made by research institutes and urged to develop a holistic approach involving scientists, industry, processors and farmers to tackle the problem. He informed that since aflatoxin does not cause visible yield loss, farmers are not encouraged to invest on pre- and post harvest preventive measures. He suggested that for meeting the export demand the country should have a separate production programme with possible involvement of contract farming.

Dr. M. S. Basu, Former Director, NRCG, Junagarh presented a comprehensive strategy to deal with the aflatoxin problem in groundnut. He listed out some practical measures involving cultural methods, bio-control measures and mechanical methods that can easily be adopted by different stakeholders. He elaborated on the possible soil level, plant level and post-harvest/processing level solutions to prevent aflatoxin contamination. Importance of segregating immature pods/kernels and proper drying of pods was specifically emphasized by him. He suggested that special zones should be identified for isolating hot spot regions for production of export quality groundnut.

Dr. H.D. Upadhyay, Principal Scientist & Head, ICRISAT, Hyderabad gave a detailed account of genetic factors responsible for aflatoxin resistance in groundnut. However, he suggested that reducing pre-harvest infection may have little impact on post harvest aflatoxin problem as even resistant lines may develop aflatoxin contamination later. He suggested for tackling pod and kernel level weaknesses with simple practical solutions. Providing incentives to the produce with better quality is a possible approach for promoting export of groundnut. He cited the efficacy of Purdue Improved Crop Storage (PICS) methods in proper storage of groundnut to avoid aflatoxin infection. He offered to share the resistant lines identified by ICRISAT for breeding and large scale testing purposes. In his view combining aflatoxin resistance with early maturity and drought tolerance is the only viable solution to minimize aflatoxin contamination.

Dr. S. Vasanti, Principal Scientist, NIN, Hyderabad gave a brief account of effect of aflatoxin on human health particularly its carcinogenic effect on liver. She emphasized on the importance of undertaking risk assessment studies and management of dietary habits for reducing chronic

health burden on the nation. She listed the National and International standards put forward by various countries for import-export of aflatoxin contaminated material that should be followed.

Sh. Devendra Prasad, AGM, APEDA pointed out the necessity of adhering to strict quality control of produce for compliance of the regulatory mechanism particularly by the European Union (EU) which is extremely stringent with their import. However, the stringency imposed by some countries is quite arbitrary. He indicated that since international trade is dependent on demand and supply, the quality norms are often altered accordingly. He cited that there have been 400 rejections (out of 1000) by EU due to aflatoxin contamination. He emphasized on the need of a strong extension system to address the issue of interventions provided to the farmers as importers assess their possible import through direct survey of farmers. Registration of the processing units with APEDA will reduce the rejection level in future.

The representatives of States and SAU expressed their readiness to adopt suitable technological interventions developed by research institutes and implement them on farmers' fields provided necessary support is made available. They especially requested for short duration varieties that can avoid end season drought and effective bio-control agents for aflatoxin management.

Dr. B.B. Singh, ADG (O&P) remarked that with the adoption of technologies available with National & International Research Organizations, aflatoxin contamination could be reduced significantly if a concerted effort is made by all stakeholders to address various issues at different levels.

Dr. P.K. Chakrabarty, ADG (PP) was of the view that hot-spot for areas for aflatoxin fungus may be mapped and avoided for production of export quality groundnut. He also pointed out that various bio-agents including thermo tolerant strains are available with ICAR institutes.

The Chairman in his concluding remarks pointed out that farmer-friendly technologies, those can easily be adopted by farmers, should be developed and disseminated. He urged the research institutes to develop resistant varieties and de-notify the old and susceptible varieties at the earliest. He suggested to put in place a proper mechanism of releasing varieties on the basis of aflatoxin resistance/susceptibility. He emphasized on the need of providing regular advisories to the processors and industry so as to sensitize them from time to time. He expressed the hope that APEDA and IOPEC should take pro-active steps by initiating preventive measures to produce export quality material by the farmers. Since, aflatoxin contamination may be minimized significantly through better management practices, capacity building of managers and awareness campaigns; these should be accorded top priority. Simultaneously appropriate crop rotation, intercropping, better soil and water management and post harvest management practices may be emphasized by the research and development organizations. He directed that DGR, Junagarh should prepare an easily implementable action plan at the earliest and submit to DAC within a month for further dissemination to all stakeholders. He was of the view that if required, adaptive/strategic research studies may be taken up in emerging areas for which funds may be provided.

The following major actionable points emerged from the deliberations:

S.No.	Action Point	Institutes/Organization
1	Bulletin on aflatoxin management may be developed and disseminated.	DGR should develop the bulletin within a month and submit to DAC for circulation to various stakeholders.
2	Identification of aflatoxin hot-spot areas up to the district level in consultation with respective SAUs/Research Organizations.	Concerned State Govt. should complete the task within 3 months and submit to DAC.
3	Dissemination and support of production technology like removal of crop residues, optimum moisture conservation, deep ploughing, raised bed-furrow planting, poly-mulch, application of bio-agent, FYM, gypsum, micro-nutrients, harvesting at right maturity, grading of pods, proper drying and storage at farm level. Awareness generation among farmers.	State Govts. should integrate the activities under MM-1of NMOOP action plan.
4	Identification of potential export zones, groundnut production specifically for export purposes with incentives, post harvest management and processing for export purposes. Awareness campaign and skill development of traders, processors and exporters.	APEDA and IOPEPC should identify the export zones and promote suitable package.
5	Development of short duration and end-season drought tolerant varieties with low aflatoxin infection and more potent bio agent that discourages aflatoxin fungus infection.	ICAR and ICRISAT
6	Time bound adaptive/ strategic research studies in emerging areas related to aflatoxin contamination.	Research Institutes/ SAUs should submit specific proposals to DAC.

The meeting ended with a vote of thanks to the chair.

List of Participants of the Brainstorming Session on "Minimizing Aflatoxin Contamination in Groundnut" held on 13th November, 2014 at 11:30 AM at Acharya Jagadish Chandra Bose Hall, Krishi Bhawan, New Delhi

S.No.	Name & Designation	Organization
DAC		
1	Dr. J.S. Sandhu, Agriculture Commissioner	DAC, Krishi Bhawan,
2	Dr. Anupam Barik, Addl. Commissioner (OS)	DAC, Krishi Bhawan
3	Sh. M.N. Sukumaran, Director (OS)	DAC, Shastri Bhawan
4	Dr. J.P. Singh, Consultant (OS)	DAC, Shastri Bhawan
5	Dr. M. Dutta, Consultant (OS)	DAC, Krishi Bhawan
6	Sh. Karanjit Singh, Dy. Director (OS)	DAC, Shastri Bhawan
7	Sh. M.K. Nirbheek, US (OS)	DAC, Shastri Bhawan
8	Sh. Ganesh Singh, US (Trade)	DAC, Krishi Bhawan
9	Dr. T.A. Usmani, Dy. Director (PP)	DPP, Krishi Bhawan
10	Sh. T.P. Singh, AD (CA)	DAC, Krishi Bhawan
11	Sh. Jitendra Kumar, AD (OS)	DAC, Krishi Bhawan
ICAR		
12	Dr. B.B. Singh, ADG, (O & P)	Krishi Bhawan, New Delhi
13	Dr. P.K. Chakrabarty, ADG, (PP)	Krishi Bhawan, New Delhi
14	Dr. T. Radhakishnan, Director	DGR, Junadagh, Gujarat
15	Dr. M.S. Basu, Ex-Director, NRCG	Kolkata
16	Dr. Ram Dutta, Principal Scientist	DGR, Junagadh, Gujarat
17	Dr. P.P. Thirumalaisamy, Scientist	DGR, Junagadh, Gujarat
ICRISAT		
18	Sh. H.D. Upadhyay, Principal Scientist & Head	ICRISAT, Hyderabad
19	Dr. Manish Pandey	ICRISAT, Hyderabad
20	Sh. Arun Pal	ICRISAT, New Delhi
APEDA		
21	Sh. Devendra Prasad, AGM	APEDA, New Delhi
22	Ms. Sunita Rai	APEDA, New Delhi
Central Institute & SAU		
23	Dr. S. Vasanthi, Scientist 'D'	NIN, Hyderabad
24	Dr. Vemana, Sr. Scientist	ANGRAU, ARS, Hyderabad
States		
25	Sh. Jayant Deshmukh, Director of Agri. (I& QC)	Govt. of Maharashtra,
26	Sh. N D R K Sharma, State Consultant	Govt. of Andhra Pradesh