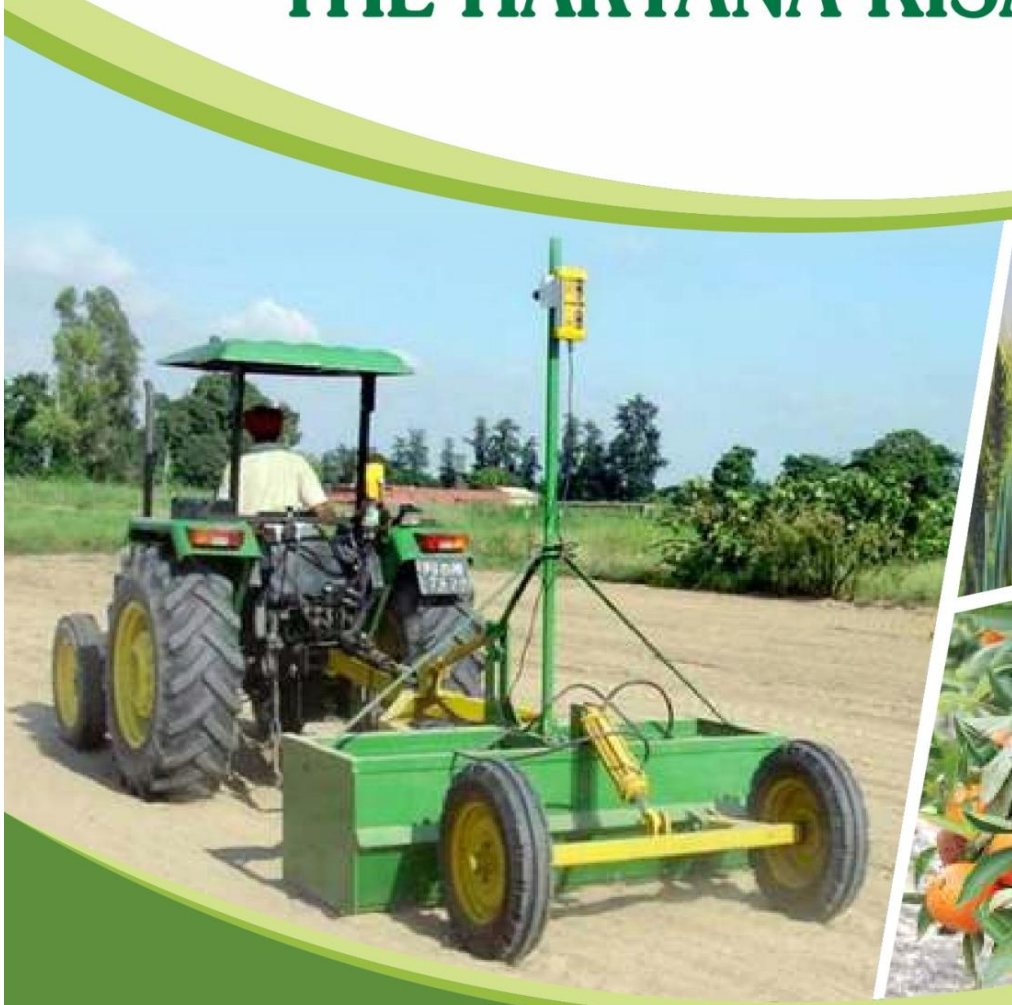
TRANSFORMING HARYANA -PROGRESSING HARYANA

# IMPORTANT RECOMMENDATIONS OF THE HARYANA KISAN AYOG



## Haryana Kisan Ayog

### Government of Haryana

# IMPORTANT RECOMMENDATIONS OF THE HARYANA KISAN AYOG

2017

Haryana Kisan Ayog
Government of Haryana

Important Recommendations of The Haryana Kisan Ayog



**Number of copies published: 1000**
**Not for sale, Official use only**

# IMPORTANT RECOMMENDATIONS OF THE HARYANA KISAN AYOG

COMPILED BY :

**Dr. Sandeep Kumar**

**Dr. Gajender Singh**

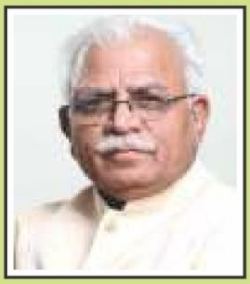
Research Fellows, Haryana Kisan Ayog

**Haryana Kisan Ayog**

**Government of Haryana**

सत्यमेव जयते

**Manohar Lal**
**Hon'ble Chief Minister**
Haryana



# Message

I am glad to know that Haryana Kisan Ayog has decided to bring out an important document entitled as "Important Recommendations of the Haryana Kisan Ayog"

The farmers of Haryana had played a significant role in ushering in Green Revolution. Today, the State is a significant contributor of food grains to the Central Pool. Keeping in view the shrinking land holdings and degradation of natural resources, crop diversification is being promoted and farmers are being encouraged to adopt horticulture and take up activities like beekeeping and dairy farming to increase their income. Apart from this the government is giving a number of incentives to farmers to motivate them to diversify their crops.

There is a need to promote organic farming to ensure good soil health, quality food and clean environment besides meeting the growing demand for organic products within and outside the country. Organic farming would also cut down the cost of production and would help in raising the farmers' income. The State Government has already initiated a massive programme of solid waste management in major cities to provide clean environment and organic manure to the society.

Development in agriculture has also triggered fast growth of agro-industries in the State. Still there is a need to increase the productivity of various crops and reduce the input costs. We should also create an enabling environment that promotes farming, allied and off-farm activities as sustainable and productive livelihood options.

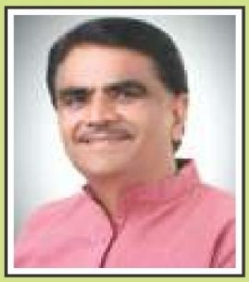
A document prepared by Haryana Kisan Ayog in the form of "Important Recommendations of the Haryana Kisan Ayog" based on the summary of all the thirteen reports prepared by the Ayog so far would certainly be highly informative and valuable. These recommendations have been given after a long and exhaustive deliberations with stakeholders including policy makers, scientists, and farmers.

I am sure, this publication will certainly help the state government, especially the planners, scientists and the field functionaries in achieving the goal fixed for agriculture sector by the Prime Minister of India.

My best wishes.

**(Manohar Lal)**

**Om Prakash Dhankar**
Minister, Agriculture & Farmers Welfare Department
Development & Panchayats, Mines & Geology,
Animal Husbandry & Dairying and Fisheries, Haryana



# Message

Haryana has emerged as one of the most important food bowls of the country being the second largest contributor to our national food reserves. Recently, Haryana has achieved the highest productivity of wheat & rice in the country and received the prestigious "KRISHI KARMAN AWARD" from Prime Minister of India and has top position in export of basmati rice. This agricultural growth has been possible through the hard working farmers, technical and policy support by the government. Despite above achievements, several second generation problems such as decline in size of holdings, depletion of natural resources, climate change, emerging pests and overuse of chemicals are posing serious challenges in agriculture. Moreover, doubling the farmers income by year 2022 is a big target for the planners and scientists. However, Haryana agriculture has enormous opportunities to increase farm income and to generate employment for youth.

The challenge for increasing farmers' income can be achieved through adoption of high-tech agriculture such as protected cultivation, peri-urban farming, organic farming, dairy, honey beekeeping, promotion of horticulture and integrated farming approach. Processing, value addition, branding and marketing of the produce is required to increase the income of the farmers. There is a need for creation of specialty agricultural hubs with production, processing, storage, marketing facilities and an efficient irrigation system to ensure "more crop per drop". Above challenges cannot be achieved without good marketing strategies. Hence, we should adopt such marketing strategies that increase the demand of our produce at global level and our farmers' product must reach the VIP table.

Haryana has a very good network of roads and all producing areas are connected to state or national highways through rural roads. The state also has geographic advantage of being in the vicinity of the National Capital which offers tremendous demand for high value products. The state can harness this advantage and transform its agriculture in a big way to raise income of its farmers. This will happen if appropriate marketing mechanism and climate for agri-business is improved in the State. The government has also decided to provide 50 per cent subsidy to farmers on setting up of mini dairies of cows of indigenous breed. To further promote dairy farming in the State, *Samuhik* Gaushalas is also under consideration.

I am very happy to see that Haryana Kisan Ayog has submitted thirteen technical reports to the Government. These reports focused on the major aspects of State agriculture and have been very useful in achieving the overall growth in the State. Now, the Ayog has prepared another document namely "Important Recommendations of Haryana Kisan Ayog". This document will certainly help the state government especially the stakeholders in achieving the goal fixed by the Prime Minister of India. I also wish that Haryana Kisan Ayog will continue to contribute in this endeavor.

**(O.P. Dhankar)**

**Dr. Ramesh Kumar Yadava**
**Chariman**
Haryana Kisan Ayog

# Message

The Prime Minister of India has recently called upon planners, scientists, farmers and other stakeholders to take necessary initiatives to double the farmers' income by the year 2022. This call carries clear message to strengthen agriculture sector in order to alleviate rural poverty and enhance purchasing power of farmers and youth which, ultimately, would work as game changer to uplift the overall economic growth of the country. Although doubling the farmers' income in the State in a stipulated period is a challenge, yet the State government has taken this challenge as mission to achieve the target.

The State government has focused upon achieving higher returns on per unit of investment in different sectors of agriculture including crops, horticulture, dairying, beekeeping, fisheries, poultry etc. Obviously this will need higher rate of adoption of efficient and cost- effective technologies not only for production purposes but also for post-harvest management, processing, branding and marketing. Further the government will also ensure timely availability of quality inputs including seeds, fertilizers, irrigation water, feed and fodder etc. The approaches for capacity building of rural youth will also be modernized and systematized so that they are able to carry forward the technology driven agriculture.

The Ayog takes pride in the fact that it has submitted thirteen reports to the State Government in a span of 6 yeras. These reports focusing on various specific aspects of Haryana agriculture will certainly help the state government especially the planners, scientists and field functionaries in achieving the goal fixed by the Prime Minister of India.

The present publication entitled "Important Recommendations of The Haryana Kisan Ayog" can be a guiding document for the youths in particulars and for the overall growth in agricultural sector.

**(Ramesh Kumar Yadava)**

**Dr. R.S. Balyan**
**Member**
Haryana Kisan Ayog

# Message

Haryana is a leading agrarian state of India. Agriculture sector remains the principal source of livelihood of more than 50% population. It has excelled in the productivity of Wheat, Bajra, Rapeseed & Mustard, seasonal Button Mushroom and export of *Basmati* Rice in the country. Being small acreage state it has contributed substantially to the central pool.

Most of the agriculturally suitable land is already under cultivation and there is limited scope for further horizontal expension, rather due to faster urbanization & industrialization cultivable land and agriculture share of water is decreasing day by day. Intensification and imbalance & inappropriate fertilizer application and over exploitation of ground water limits the capacity of soil to produce optimally and sustainable at spatial and temporal scales, hence the factor productivity has gone down.

The challenges for agriculture are manifold: to increase agriculture production, especially nuitrient rich foods to improve and prevent further natural resources degradation and to make agriculture a self sustained area/industry. Now for future food and nutrition security, strengthening of poorly exploited aspects/areas like horticulture, dairying, fisheries, floriculture and diversification of crops needs greater attention.

To overcome decline in factor productivity strategic breeding involving conventional & molecular tools, improvement in input use efficiency, resource conservation technology (RCTs) mechanization & precision agriculture, abiotic stress management, development of region specific integrated farming system (IFS) models and climate resilient agriculture are important areas to promote sustainable development in Haryana.

Haryana Kisan Ayog based on several deliberations and discussions between institutions, industries, farmers and government bringing and suggesting policies and recommendations for the upliftment of farmers and associated communities from poor to prosperous zone. I believe that the strategies/policies suggested by HKA in this publication will certainly help farming community vis-s-vis state economy.

Balyan

**(R.S. Balyan)**

**Dr. Shyam Bhaskar**
**Member**
Haryana Kisan Ayog

# Message

I am happy to know that Haryana Kisan Ayog is publishing important recommendations made in its various reports submitted to the Government.

This should be a happy occasion but the real challenge before the Government, Agri-scientists and all stakeholders is only 2% annual growth in Agriculture and 4.6% annual growth in Animal Husbandry & Dairying. We should take notice of the fact that we are nearing app. 200 Million Tons of milk production annually in the country which is value wise more than the wheat and paddy put together, being produced in the country.

Hence, for Dairy & Animal Husbandry we should give massive befitting incentives to keep the pace of milk production enhanced. In view of the call given by Honourable Prime Minister Sh. Narendra Modi and direction given by Honourable Chief Minister, Haryana Sh. Manohar Lal to double farmers' income by 2022, Dairying, Livestock Industry & Horticulture are going to play major role to achieve that target.

I sincerely thank Haryana Govt. for giving representation to Veterinary profession for the 1st time in HKA.

I assure Hon'ble Chief Minister, Haryana & Agriculture Minister, Haryana to work sincerely and earnestly for DOUBLING the milk production in Haryana in next five years with their cooperation and help.

I am too sure that the way to Hon'ble Prime Minister's call for a "WHITE REVOLUTION" in the country would pass through Haryana.

With lot of good wishes,

**(Shyam Bhaskar)**

**Dr. Abhilaksh Likhi, IAS**
**Principal Secretary to Govt. of Haryana**
Agriculture & Farmers' Welfare Department, Haryana

# Preface

Haryana has scripted a success story in agriculture by achieving all time high productivity which helped transforming farmers' economy. The policies of the State government supported large scale adoption of improved technologies by the farmers were the key for this success. The State took corrective measures time to time to keep buoyancy in all sub-sectors of agriculture including crops, horticulture, animal husbandry and fisheries.

During the current decade, the growth in agriculture sector was slowing down. I am happy to see that Haryana Kisan Ayog took note of it and prepared reports on various issues concerning State Agriculture. To find out the core reasons of stagnation and also to suggest measures to overcome the challenges, Haryana Kisan Ayog constituted "Working Groups" each having experienced scientists and field functionaries as members headed by an eminent scientist to prepare study reports. These groups had wider discussions with stakeholders including farmers, rural youth, scientists and field functionaries which helped in identifying core problems, possible solutions and opportunities in different sub-sectors of agriculture. I am really impressed to see all the thirteen reports submitted by Ayog on different aspects and believe that these reports may prove highly valuable to scientists and planners to boost further the growth of agricultural activities in the state.

The Ayog has brought a publication "Important Recommendations of the Haryana Kisan Ayog" which subsumes all the reports prepared by Ayog so far. In this report the problems in agriculture and their probable solutions have been illustrated in a very systematic and understandable manner. I believe that this report will prove to be a 'Guide Book' to various stakeholders in agricultural activities in the state of Haryana.

**(Abhilaksh Likhi, IAS)**

**Dr. R.S. Dalal**
**Member Secretary**
Haryana Kisan Ayog

# Acknowledgements

The Ayog takes pride in the fact that it has submitted thirteen reports to the State Government in a span of 6 yeras. These reports focusing on various specific aspects of Haryana agriculture such as Natural Resource Management, Crop Improvement, Horticulture, Protected Cultivation, Post-harvest Technology, Value Addition, Animal Husbandry, Fisheries, Beekeeping, Agricultural Extension, Marketing and Policy Issues. In these reports specific recommendations were made and it is expected that these recommendations will help in strategic planning to make agriculture both buoyant and profitable occupation. The Ayog has now brought out a report titled "Important Recommendations of the Haryana Kisan Ayog" which is based on the important suggestions of all the reports submitted by the Ayog. This report is also a synthesis of various agriculture development related issues that require priority action by the Government.

I am highly grateful to Dr. Ramesh Kumar Yadava, Chairman, Haryana Kisan Ayog for providing valuable guidance and necessary support in preparation of this report. His generous guidance and encouragement helped the Ayog in timely preparation of this extensive report. I am higly thankful Dr. R. S. Balyan & Dr. Shayam Bhaskar for their valuable suggestions. I am grateful to the former Chairmen, HKA Dr. R. S. Paroda; Sh. Dhanpat Singh, IAS; Sh. V. S. Kundu, IAS; and Dr. Abhilaksh Likhi, IAS for their necessary support and guidance. I am also highly thankful to Vice Chancellor, CCSHAU, Hisar, for his support and guidance. I am indeed thankful to Chairmen and members of all technical Working Groups for their untiring and commendable efforts.

The Ayog is also highly thankful to Dr. D. P. Singh, Ex- VC, JNKVV, Jabalpur and Ex-Consultant, HKA; Dr. K. N. Rai, Ex-HOD, Agriculture Economics, CCSHAU, Hisar and Ex-Consultant, HKA; Dr. R. B. Srivastava, Former Associate Director, Planning, CCSHAU, Hisar and Ex-Consultant, HKA and Dr. R. N. Arora, Consultant HKA for sparing precious time to draft this report after consultation with several stakeholders. I am also thankful to Dr. Gajender Singh, Dr. Sandeep Kumar and Mrs. Vandana, Research Fellows of HKA for providing technical support in preparation of this report. I am also thankful to other staff members of HKA for their precious assistance in preparation of this document.

I am sure this report will receive due attention of the concerned departments and functionaries for its implementation so as to initiate appropriate action for redressing the specific concerns of the farmers of Haryana.

Finally, I am thankful to the all the stakeholders of the State who put forward their views and offered suggestions in preparation of this report.

**(R.S. Dalal)**

# CONTENTS

# 1 NATURAL RESOURCE MANAGEMENT IN HARYANA

In order to find solution of location specific complex and interlinked problems of Natural Resource Management (Land, soil, water, biodiversity, climate) for sustainable development of agriculture in the State, there is an urgent need to undertake the following activities/actions:

- Strengthening of digital data base on status and dynamics of land use, soil, water, climate, vegetative cover, cropping & farming systems and its revalidation after every five years by HARSAC and CCSHAU.
- Setting up a School of Natural Resource Management and Environmental Sciences at CCS HAU, Hisar to prioritize, undertake and guide education, research and development programs for sustainable resource management in the State.
- Preparation of scientific land use plans of the State using modern tools and techniques of remote sensing/GIS by HARSAC and CCSHAU, Hisar.
- Strengthening of Regional Research Stations of CCSHAU to prioritize location specific research and development agenda in general and striving for better scientist-farmer connect through adaptive research projects in participatory mode to address region specific issues of NRM in the State.
- Recycling of organic matter in the soils is needed on priority to improve the soil health. Encourage use of organic manure, bio-fertilizer, green manure/ legumes in crop sequences and promotion of CA based technologies. Also motivate people for bio-gas plants and plantation of multipurpose trees to save cow dung from burning.
- Strengthening existing soil health cards incorporating information on soil organic matter and water quality.
- There is a need for quantification of carbon sequestration under different production system, agro-forestry, organic farming so as to help the farmers

from benefit of carbon trading in future. Similarly, there is need for scientific studies on nutrient budgeting and soil quality improvement indicators (carbon sequestration, hydrolic properties, dehydrogenase activity, microbial biomass, C and N).

- Effective enforcement of laws banning diversion of untreated sewage water and industrial effluent for peri-urban farming. Also a time bound program for the allocation of adequate water to the water deficit arid regions.
- Developing solutions to hydrological imbalances through integrated approaches involving on-farm water management, conjunctive use of water, pressurized system of irrigation and other water saving devices, surface and subsurface drainage, recharge of aquifers, diversification, intensification, CA based technologies and holistic watershed management approach.
- Strong linkage should be developed with institutes of ICAR, particularly Regional Centre of IISWC, Dehradun, CAZRI, Jodhpur and Central Institute of Arid Horticulture, Bikaner to prioritize location specific strategic and adaptive research for rainfed areas. Rainfed Portal as a knowledge platform to share data, technologies and experiences need to be developed.
- To develop rainfed areas, MGNREGA be implemented on watershed principles and converged with IWMP to develop more productive natural resource assets. Also, convergence of production and livelihood related programs such as RKVY, NFSM, NHM, NRLM, etc should also be used as a policy instrument to effectively use NRM base for sustainable production and livelihood.
- Augmentation of water supplies by conserving rainwater in the fields, aquifers, water bodies, conjunctive use of brackish and fresh waters, treatment of sewage and industrial effluent for use in irrigation and desilting of existing water bodies and construction of new water storage structures to cope up with scarcity of irrigation water.
- Since soil salinity and resodification are the problems of recurring nature, the mandate of HLRDC be now changed/enlarged to reclaim both sodic and saline soils in the State.
- Bio-saline agriculture should be promoted in saline/sodic groundwater areas.
- Strengthening of foliar application of water soluble fertilizer mixtures having

NPK and important micro-nutrients to be undertaken for drought mitigation to boost plant vigor for withstanding drought and minimising yield losses in rainfed crops. besides essential application of phosphotic & potassic fertilizers.

- There should be adequate supply of quality gypsum at subsidized cost to reclaim sodic waters and control re-sodification.
- Strengthen measures to recharge groundwater using technologies developed by the CSSRI, Karnal and CCSHAU under the AICRP on Water Management and AICRPDA.
- Mechanical device for harvesting and chaffing of *P. juliflora* and harvesting & threshing of castor needs to be developed.
- Construction of sub-surface dams/galleries, wherever possible, must be encouraged, supported and scaled up in the Shivalik area with community participation at a large scale.
- Institutional mechanism like recharging/maintenance of ground water, community bore-wells, etc. needs to be promoted for efficient use of collective resources (forest, grazing land, water).
- Acreage of rice needs to be decreased to release some pressure on water resources. Crop diversification of hybrid maize (*kharif* and *rabi*) and pulses/vegetable crops are some of the possibilities. The new cropping system will also save irrigation water.
- There should be proper development of watershed in rainfall deficit area on scientific basis to take care of soil water conservation and also the availability of drinking water on priority basis in the villages.
- Due to poor maintenance of natural resource assets and common property resources (CPRs), there is a need to change the pattern of benefit sharing from CPRs by the Forest Department, as most of the Societies in villages/ watersheds have become non-functional. Necessary alternate institutional arrangements are required to revive these societies by restoring their lost potential through bottoms up approach.
- Drought proofing mechanism should be strengthened by developing weather index based insurance module for rainfed crops and other agricultural sectors.
- Create CA Machinery Banks with Farmer Cooperatives in the Blocks. Introduce new prototypes of cultivator, double disk openers, harrows, stubble

cotton cutters and machines for sowing of relay crop of wheat in sugarcane and cotton.

- Single Window Services' for zero-till/minimum till planting with residue retention in wheat and other crops need to be promoted to avoid residue burning in wheat /sugarcane areas.
- Department of Agriculture need to encourage and support farmer cooperatives based on CA and to facilitate and subsidize the purchase of CA equipments and other inputs.
- Encourage ITIs and Cooperatives to set up service and repair centers for agricultural implements in each block. A course can be introduced in the ITIs to promote self employment of the rural youths.
- Provide tax break incentives for CA farmers for water use efficient technologies and also that build soil carbon (carbon credits).
- Need for strengthening research efforts for improvement of indigenous grasses like *Cenchrus cilliaris, C. setigerus, Lasiurus sindicus,* etc., trees like *Prosopis cineraria, Tecomella undulata, Acacia senegal,* etc. and shrubs like *kair, henna, senna* and *guggal* in close association with ICAR institutes.
- Livestock and tree farming are safety nets to support rainfed farming. Appropriate policy initiatives need to be in place to conserve and improve livestock breed and strengthen agri-horticulture and agro-forestry.
- There is need to popularize the drainage/biodrainage system to reclaim water logged saline areas. For rehabilitation of such water logged saline areas, suitable clones of Eucalyptus and other species be planted for effective bio-drainage and should be made available by the concerned departments.
- Promotion of managed forestry and agro-forestry by treating tree as crop for planting and harvesting purposes and incentive to farmers for undertaking agro-forestry, pisciculture and biodrainage under problematic soils and water conditions.
- Standardization and popularization of mulching technologies, raised and sunken bed technique, auger pit technique for large scale trees plantation on waste and unproductive areas (rocky, deep and hard pan etc.) of the region in participatory mode.

- Strengthen research in the use of new generation polymers to enhance water holding capacity of soils in rainfed water deficient areas.
- The ridger seeder technology should be popularized by a special mission on 'Mechanization of rainfed crops in South-West Haryana'. This may be incentivized and promoted through village level custom hiring centres etc.
- Design and development of efficient and low-cost tools and implements for various agricultural operations, including tillage, weeding and post-harvest purposes to reduce drudgery especially for farm women.
- High priority should be given for harnessing of renewable energy (cow dung based bio-energy/ solar/wind/geothermal) developing gadgets at affordable price for different farm and domestic operations. Close association with other institutes (particularly CAZRI, Jodhpur, IIT, Delhi) should be strengthened in the regard.
- Development of biopesticides for effective management of pests.
- A core group of scientists consisting of CCSHAU, Hisar, HARSAC, Hisar, CSSRI, Karnal and the officials of State Groundwater Cell and Irrigation Department be formed for resource mapping and regular monitoring of the availability and quality of surface and ground water data in digital form. This interdepartmental group could thus facilitate and advice on regular basis the stakeholders of different regions for proper conservation, augmentation, reclamation and utilization of surface and ground water for improving water productivity under different production systems.
- Farmers are interested to shift from flood irrigation to sprinkler and drip irrigation systems of water application in canal command area (CCA). To make it feasible, there is need for construction of secondary reservoir in CCA and scientist-farmer connect-adaptive research and proper technical support to guide and help the farmers for adopting pressure system of irrigation under different production systems.
- To undertake time bound program to bring at least 50% area in next 10 years under pressurized system of irrigation and other water saving devices.
- Mainstreaming climate change related adaptation measures, including demonstrating the concept of 'Climate Smart Villages 'to meet the challenges of climate change in fragile rainfed ecosystem.

Chairman, HKA Dr. Ramesh Kumar Yadava, during the inaugural function of the National Conference organized by CCSHAU Hisar

Dr. R. S. Dalal, Member Secretary, HKA during Buffalo Mela at CIRB, Hisar

# 2 CROP IMPROVEMENT

Crop improvement especially the advent of high yielding varieties and hybrids has paid rich dividend to the farmers and the state as a whole. However, intensive cultivation and ever changing weather conditions have thrown a number of challenges requiring immediate solution. The most important are outlined below.

- In Haryana, the major cropping systems are rice-wheat, cotton-wheat, pearlmillet-wheat, clusterbean-raya/wheat, fallow-rapeseed & mustard and sugarcane. Some of the important issues related to these cropping systems and diversification and their probable solutions including intercropping need to be addressed at priority.
- Maize, soybean, castor, sunflower, *basmati* rice, *guar*, mungbean groundnut, gram, autumn sugarcane and arhar have the potential to break the water-intensive rice-wheat cropping system in Haryana. The development of hybrids/varieties of these crops may be taken on priority.
- Direct seeding of basmati rice (DSR) should be promoted in rice growing areas belt and all of the rice-potato/vegetable systems, no-till mechanical transplanting can be promoted as well on 10% of the rice area.
- Appropriate technologies for faster screening of germplasm against biotic and abiotic stresses need to be strengthen for breeding climate resilient, pest and disease resistant varieties of crops.
- Crop varieties suitable for variable inputs, tillage conditions, organic farming and different cropping systems need to be promoted.
- Need to develop improved fodder crop varieties with higher yield, protein and nutritional value, encompassing different seasons. Better varieties of multicut sorghum, oats, lucerne and berseem need to be developed,

addressing the problem of hydrocyanic acid (HCN) in sorghum and phyto-estrogens in lucerne and berseem.

- Improvements in indigenous trees/shrubs/ grasses/crops for earliness and drought/heat/frost/salt/air and shade tolerance under suitable agronomic background conventional and modern tools of genetic improvement need to be undertaken on priority to mitigate climate change effects on agricultural production systems.
- Inclusion of notified varieties and hybrids in package of practices developed by different institutions /sectors need to be done in shortest possible time.
- Globalization has opened up new opportunities for exporting agricultural products. Accordingly, speciality crops (like basmati rice, season mushroom, guar etc.) having niche in Haryana be promoted to capture global markets.
- The private sector has now come up in a big way to develop varieties/hybrids in cotton and rice. CCSHAU may take appropriate measures to complement efforts to develop hybrids in the interest of farmers. Special attention should be given to develop cotton varieties/hybrids resistant to different pest and diseases specially white fly.
- Launching of "State Seed Mission" including seed village concept for effective implementation of seed production programmes of crops in different regions would help in enhancing seed replacement rate and intern productivity of the state.
- Strengthening and simplification of certification facilities for testing of organic products, soil & water quality, seed health and pesticide residues need to be undertaken. In addition, creation of storage facilities for agricultural inputs and produce in PPP mode require attention for reducing Post-harvest losses.
- There is an urgent need to provide technological support to small and marginal farmers which account for 65% of the total farming families. These farmers need remunerative farming and cropping systems for which they require appropriate crop varieties, low cost machines, tools and feasible technologies. Hence, a State Mission on "Mechanization of Small

Farms" may be launched. Research programmes should receive due focus on micro-management of resources including crop residue management and refinement of technologies to meet requirements of such farmers.

- There is a need of introducing high capacity sugarcane harvester-chopper in cooperative sugar mills to harvest the crop of a member farmer and bring it immediately to the factory for better sugar recovery and to avoid drudgery of manual sugarcane harvesting, bundling, transportation etc. by the farmers.
- The research programmes need to be formulated by sharing knowledge and experience of farmers, grass root innovators, agri- entrepreneurs and agroindustries. Possibilities of participation of private sector, where necessary, should be explored and mainstreamed.
- There is need to shift the focus from crop/commodity to multi-enterprized based farming system's approach in order to increase employment, income and livelihood security of small holder farmers.
- Establishment of "Gene Bank" at CCSHAU for conservation of plant genetic resources is required. In addition, the seed and fodder Banks may be created by the State departments concerned under the technical guidance of the Universities for sustainability of farming systems and meeting the exigencies
- Strengthening of timely survey, surveillance, monitoring, and forecasting of emerging pests & their management would help in mitigating crop losses.
- There is a need to strengthen weather index based crop insurance using weather data (rainfall, frost, drought, heat stresses, wind storms etc.) as trigger events to compensate the farmers for loss of their livelihoods.

Hon'ble Agriculture Minister Sh. OP Dhankar in the Fruit Expo at Mangiana, Sirsa


Chariman, HKA speaking in the Mega Veg Expo at Gharaunda, Karnal

# 3 HORTICULTURE AND PROTECTED CULTIVATION

Horticultural crops generate higher income and employment per unit of area as compared to field crops. These crops are also more suited to the waste and undulated lands as compared to other crop enterprises. Moreover, the demand for horticultural product is in rise. To make it more profitable and producers' friendly, it invites government attention on the point listed below.

- There is need to adopt PPP mode to develop quality seeds/ including hybrids and other planting material for horticultural crops (i.e. vegetables, fruits, flowers, spices, medicinal plants) and also to develop varieties which are resistant to biotic and abiotic stress suitable for protected cultivation and processing. Potential varieties/ hybrids wherever available need to be introduced in the state for adoption to help in year round quality & quantity production of horticultural crops.
- The hybrid seed of vegetable crops are very costly. The government agencies in collaboration with CCSHAU and centers of excellence need to develop a seed production program for vegetables to help farmers in providing good quality seeds/planting material at reasonable cost.
- The pace of accreditation of nurseries in the State is quite slow. Nurseries in public and private sector need to be accredited by the Government agency to ensure production of quality planting material. There should be establishment of Model nurseries and development of crop-specific scion blocks in SAUs and State department of Horticulture.
- There is need to rejuvenate old orchards as well as to promote arid horticulture by utilizing both indigenous and exotic varieties suitable for arid region.
- There is need to rationalize the concept of a cluster and implementation of cluster development concept for upscaling of horticultural crops and increasing profitability of grower and linking them to the market.

- The new machines developed for processing like pomegranate aril extractor, vegetable washer, carrot washer, aonla juicer, kinnow juicer, heat pump dryer, tomato grader may be promoted with adequate subsidy. The government may help with suitable policy support to promote mobile cool chamber & cool chain system for horticulture crops.
- Concerted effort should be made to focus on arid horticulture in South-West Haryana. Several operations in horticulture plantation can be realized by converging National Horticulture Mission (NHM) and MGNREGA as done in Andhra Pradesh.
- Strawberry farmers importing quality planting material from California through Pune farmers sometimes don't get desired planting material due to difference in the agro-climatic conditions of Pune, Hisar and California. The strawberry farmers demanded that CCS HAU, Hisar should help them in importing and proper testing of the adaptability and productivity of imported strawberry material under the agro-climatic condition of Haryana.
- With a view to cater futuristic demands, efforts should be made to conserve, collect, evaluate and exploit genetic potential of under-utilized species, including new crops. Close linkage should be developed with research institutes like CIAH, Bikaner, CAZRI, Jodhpur, etc.
- There is an urgent need for scientific collection of reliable data on area, including area under homegardens, its production and yield, which can ensure systematic horticultural development in the State.
- There is need for pest & disease forecasting for timely control management of pests. Promotion of good agricultural practices (GAP) and IPM technologies for effective pests management.
- Greater emphasis on the effective control of *Orobanche* in vegetable crops and wilting of bael and guava trees and other diseases and insects in arid fruits in arid ecosystem.
- There is need to increase the strength of technical manpower for implementation of several high density and high tech based horticulture development programmes now in operation in the State. There is also need to encourage rural youth and women for hands on training by Horticulture Department.

- Live fencing with Karonda, *Agave sisilana, Euphorbia tirucalli* could be adopted in arid and semi-arid region of Haryana for preventing the trespass of animals (stray and wild), and promoting soil and water conservation.
- It is important to constitute Mushroom Development Board (MDB) for promotion of mushroom processing and marketing in India. Strengthening of accreditation facilities of spawn units in public and private sectors and enforcing spawn standards and fair price for timely availability of quality spawn.
- Declaration of minimum support-price for major horticultural crops and provisions for insurance coverage.
- There should be adequate subsidy on establishment of new plantation till fruit bearing stage, including subsidy on water storage and fertigation tanks to follow High Tech Horticulture and subsidy for fencing to control the damage of their crops from blue bull and other wild animals.
- Need of adequate provisions of incentive for the innovative farmers cultivating new crops like strawberry, mint, *Aloe vera*, spices and stevia etc.

## PROTECTED CULTIVATION

- Promotion of protected cultivation in the State should be holistic with a complete package and not merely the construction of greenhouses and protected structures only.
- Self-constructed greenhouses and low cost temporary structures may also be considered for subsidy linked schemes. The quality of structures and technical adherence to dimensions and material used, have to be ensured through multiple-agency verification. Foggers should be fixed on the top of the structures for removing dust from the roof of the structure
- Quality seeds/nursery/other planting material suitable for protected structures should be ensured at the time of granting the scheme of funding to the grower.
- Research gaps on protected cultivation including global GAP, export requirements and development of human resources should be addressed.
- Development of large protected model for vegetable and flower farms may be started in the peri-urban areas particularly near Delhi with all diagnostic and global GAP certification laboratories with accreditation authority.

- There should be a centre for development of export linkages and provision of assistance to cluster farmers for the export of certified produce like fresh vegetables, fruits and cut flowers and foliage.
- Institutional and stakeholder linkages should be provided on regular basis for the spread of technical know-how and the development of competitive marketing mechanisms for input industry.
- ITIs in the State may be introduced with a course on greenhouse construction, repair and maintenance apart from the development of minor tools and equipment, so that the youth could soon take it up on entrepreneurial basis.
- Institutional arrangement for imparting hands on training to the protected cultivators need to be made.

Meeting with women farmers working on IPM in Jind District

# 4 POST HARVEST TECHNOLOGY AND VALUE ADDITION

The importance of Post-harvest technology and value addition lies in the fact that it has potential and capacity to meet food requirement of growing population by minimizing losses and making more nutritive and longer shelf life food items from raw commodities by proper processing and protection. To make it more practicable & popular self life of the activities/ actions requiring government attention on priority basis are as under:

- There should be a well equipped and multi commodity agro-processing centre (APC) at village and/or Block/Tehsil level(s) owned and operated by farmers cooperative and/or NGO, or Governmental agencies such as Haryana Agro-Industries Development Corporation. Such APC should have facilities for digital weighing, cleaning, grading, drying, storage, processing of field crops and infrastructures and gadgets for cooling, grading, storing and refrigerated transport for horticultural produce for retail marketing to urban consumers through Haryana State Cooperative Supply and Marketing Federation Limited (HAFED). Workers of APC need to be trained by strengthening the infrastructures and manpower facilities.
- Processing and value addition to manufacture Ethnic Indian products or niche products at local level need to be supported. Interim processing at farmers' level by using mobile modular processing facilities organized by the Government should be encouraged.
- Production of specific agricultural commodities having better processing quality and product recovery need to be strengthened following cluster approach through contract farming and backward linkage with farmers.
- Policy support for promoting processing and value addition of niche and other crops, livestock products, arid fruits, vegetables, spices, minor forest produce, market linkages and income generating activities is recommended.

This may also be linked with watershed programmes by promoting farming system based approach.

- There is need to nurture upcoming entrepreneurs and help them in establishing and marketing by establishment of state level institute for Post-harvest Management &Value Addition.
- Agricultural wastes and processing byproducts generated at APC need to be converted into livestock feed and compost.
- There should be adequate technical guidance/ training programs and financial support to the small scale and export oriented processing industries, as there is paucity of value addition and processing units for horticulture crops especially at rural level in State. This will not only help in reducing Post-harvest losses but also benefit farmers considerably.
- Processing industry for guar gum should be established in South-West Haryana since cluster bean area is fluctuating due to unstable market. The State may take up this as a priority rural industry by inviting prospective entrepreneurs.
- Bridge research gap in Post-harvest processing of coarse grains, guar, castor, arid-horticulture fruits for benefitting the stakeholders.
- The superiority of Buffalo milk should be exploited by promoting manufacture and marketing of niche products of the buffalo milk. Buffalo-based dairy products should be promoted as Brand Haryana and the products may be named with prefix-Murrah.

# 5 ANIMAL HUSBANDRY AND FISHERIES

The most vital agriculture component for food and nutritional security and economic profitability among the farmers, with or without land, has been identified to be the "livestock". A set of recommendations is being made to translate the aspiration of the Haryana farmers having a strong indigenous livestock based production system, to potentiate the livestock production in a sustainable mode and ensure greater profits from livestock.

## Animal Improvement

- A State" Pashu Vikas Yojna" (PVY) should be established on the lines of RKVY bringing convergence and congruence of all the livestock related and community development programs.
- Considering the decline in the population and production of indigenous *Hariana* and *Sahiwal* cattle in the State, it is felt essential that the government may extend incentives / inputs for cattle rearing at higher rate.
- The problem of large population of stray and male cattle, wild animal having adverse effects on livestock health and introduction / spread of diseases needs to be dealt effectively with appropriate administrative and policy interventions.
- Breed societies/associations/ forums needs to be established for all species of livestock relevant to the state, with the responsibility for maintaining registers for true breeds, evolving the breeding targets for the breeds, health status, breeding plans, and guarding the interest of the breeds/breeders.
- Conservation and utilization of AnGR can be best achieved through a joint approach by involving livestock keepers, farmers, NGOs, Gaushalas, Breed Societies and all other stakeholders. Progeny testing programmes should

be undertaken for conservation and genetic improvement of indigenous cattle breeds

- Universal livestock insurance scheme with a corpus fund covering losses due to permanent production and reproduction failure, natural calamities and disability in working animals should be introduced.
- The huge livestock resources and infrastructures owned by the large number of Gaushalas in the state need to be rightly channelized through multi-pronged strategy to achieve conservation and improvement of the stock in an environment friendly way.
- Incentives may be considered to the farmers who are engaged in round the year forage production, making of silage and silos, establishment of fodder banks etc.
- There is need to develop area specific clusters for different animal wealth (i.e. Cows, buffaloes, goats, piggeries, poultry, fisheries etc.) with proper awareness and facilities for improvement of breeds, their management, value addition and marketing of milk and animal products.
- The commercial dairy units with an intensive, high-input, demand-driven milk production system, being the future of livestock sector, should be encouraged through various incentives, liberal financing and subsidies, capacity building and other promotional means.
- The newly established Lala Lajpat Rai University of Veterinary and Animal Sciences be provided adequate funding and supported through policy initiatives for its expansion to establish the proposed new faculties and take up the need based mandated education, research and development work.

## Animal Production

- The share of artificial insemination using semen of pedigreed/ proven bulls should be increased to > 90% in bovines over the next five years. Simultaneously, the production of high pedigreed, quality frozen semen should be doubled.

- Production of sex-sorted semen for buffaloes and cross- bred cattle must be given priority by procuring the technology for this purpose.
- Modern bio-techniques such as ETT, IVF/ IVC, ONBS etc. should be introduced and promoted for conservation and faster propagation of superior germ plasm.
- The State needs to issue a notification and complete all legal formalities in this regard to lower standards for fat content in the cow milk to 3.5% from the existing level of 4.0% to bring it at par with many other states and promote cross breeding.
- Package of practices for intensive, in-door rearing of sheep and goat should be worked out and popularized in view of disappearing pastures and grazing land.
- Farmers be updated on new livestock technologies, innovations, best practices, weather forecast, market intelligence and input availability through mobile phones, kiosks, community radio programmes, dedicated TV channel, print and multimedia.
- Terms and conditions including the rate of interest on all loans need to be at par with crop husbandry. Electricity tariff and other concessions for dairy and poultry farming must be at par with crop husbandry and fisheries.

## Meat Production

- There is a need to develop and propagate mutton type sheep breeds as demand for wool fibre has considerably declined. Similarly, dual type goat breeds (milk and chevon) which are easy to rear in-doors would have better future under the changed circumstances.
- The State should develop a comprehensive organized slaughter program including construction of modern hygienic abattoirs. Local bodies should be made responsible to ensure hygienic slaughter facilities. Regular trainings and health checkups of butchers should be mandatory.
- Sale of meat should not be allowed unless the quality is certified by the authorized veterinarian. The meat- shops must have cold storage facilities with adequate power back-up.

- Leather production needs to be developed along with meat production and the state should support a skin and hide processing unit. Proper carcass utilization must be ensured by the local bodies to protect the environment and prevent spread of diseases.
- There should be some MSP for poultry and raw poultry meat need to be treated as UAP for taxation purpose.

## Feed, Fodder and Nutrition

- Export of oil cakes need to be discouraged. Import of oil seeds rather than oil should be preferred.
- Agro-forestry and other non-conventional sources ought to be explored for feeding of livestock.
- The use of by-pass nutrients, area-specific mineral mixtures and technologies for fodder enrichment & densification be popularized and promoted.
- Community/ SHG fodder banks and silage making need to be promoted through special incentives.
- Environment friendly feeding, management and housing practices should be used to reduce risk of biotic and abiotic stresses giving priority to animal welfare.

## Health and Reproduction Management

- There is a need of a state-of-the-art referral laboratory for SPS certification of animal products in respect of pathogens, mycotoxins, residues of antibiotics, pesticides, preservatives and heavy metals.
- Haryana Veterinary Vaccine Institute should be further strengthened and fully equipped to produce combined/ polyvalent, easy to administer vaccines against all prevalent diseases and the required diagnostics.
- Investigative diagnostics and sero-surveillance be promoted to build a strong epidemiological data base to take effective and timely preventive/ containment measures. Private or P-P-P mode diagnostic laboratories be encouraged.

- State-of- the-art disease diagnostic laboratories should be established at divisional levels with adequate mobility and a Referral Centre at Hisar.
- The on-going zero infertility program needs to be further strengthened.
- Capacity building of field functionaries in assisted reproductive techniques/ gynaecological skills and controlled breeding through judicious use of hormones and other drugs should be further strengthened.
- The success story of FMD-CP needs to be replicated for H.S., Brucellosis and other dreaded diseases.
- The recent controversies in terms of the genetic makeup of protein casein in milk namely A2 or A1 gene expression need elaboration among our Zebu and Buffalo breeds particularly since the association of A1 milk has been linked to several diseases in human.

## FISHERIES

- There should be a clearly defined policy statement on introduction of exotics as well as regulation of its culture. Precautionary principle and scientific evidence should govern regulatory decisions while reconciling aquaculture developmental needs as well as biodiversity conservation requirement.
- Quality seed and feed are the most critical inputs in aquaculture. (Lack of both product as well as process standards have given rise to sub-standard and dubious seed and feed in market). Policy and legal instruments should be put in place with mandatory provisions for registration of all the seed producers, feed manufacturers and suppliers/ traders as well as certification of the seed and feed quality.
- Seed production technology, captive breeding/maturation of *Scampi* and *Pangasiaus pangasiaus*, *Hypophthalmichthus molitrix* for seed production; and refinement of captive maturation breeding are specific areas to be pursued further.
- There is a need for procurement of natural carp seed from various riverine resources both within and outside the State and their maintenance up to maturation for subsequent breeding programs.

- Marine fish species like Shrimp,*Chanos chanos*, *Mugil cephales*, *Etroplus suratensis* etc. can be cultured and grown in brackish water. Research issues must address the feasibility of producing these seed locally.

- Air breathing species require very little water in comparison to the culture of carps. Hence, efforts be made to develop hatchery and culture technology of fish species like: *Clarias batrachus and Heteropneustes fossilis* etc.
- There is need to study the breeding possibilities of the brackish water culturable fish species through induced breeding technique / captive breeding / maturation.
- There is need to develop integrated farming system with fisheries component including marketing infrastructure and information system.
- There is need for development of seed banks in Pvt. Sector/ PPP mode for ensuring round the year availability of quality seed including water quality management in community ponds.
- Policy and legal instruments shall be put in place with mandatory provisions for registration of all the fish seed producers (hatcheries, seed rearers/growers), feed manufacturers and suppliers / traders as well as certification of the seed and feed quality.
- Development of cost effective, eco-friendly aqua feeds and innovative feeding with low excretion of ammonia and release of phosphates need special attention.
- Study should be undertaken on role of probiotics in fish feeds, role of single cell protein in aqua feeds, locally formulated feeds for different species and importance of periphyton supported aquaculture.
- Incentives to be given to those who produce and supply good quality fish feeds/meals, especially using local products at reasonable costs.
- In order to provide more profitable options for farmers, species diversification for fresh and brackish water aquaculture is essential for reproduction and breeding. R&D initiatives be strengthened to take up field based research programs.

- Development of a cost effective indigenous version of RAS as against importing the complete systems shall be given priority.
- Establishment of a College of Fisheries under the LUVAS, Hisar.
- Bachelor, Master and Doctorate degree holders in fisheries need to be preferred in recruitment of technical personals by the Department.
- There is no provision of natural calamities relief measures to fish farmers against floods, cyclones, diseases etc. Hence, these natural calamities are also to be treated on par for providing compensation to fish farmers.
- Establishment of an effective extension system to tackle the day to day problems of farmers and transfer technical knowledge to fish farms.

A view of field visit


Exhibition in Kisan Mela

Women farmer's in district level farmer fare

# 6 BEEKEEPING

The Beekeeping aspect needs to be intensified. Fruit set and production has been shown to increase by 15-30% if honey bee hives are kept in orchards. They increase the production of agricultural commodities in addition to the honey and wax, its main and by-products. The following steps need to be taken to provide sound footing to this emerging enterprise:

- Systematic studies on bee multiplication, bee breeding, Artificial Queen, bee insemination technique and mating in the isolated yards need to be strengthened. Availability of genetically superior queens for increased honey production may be ensured.
- There is also a need for genetic improvement to obtain robust colony and technology may be developed to maintain bee colonies economically during lean period.
- Studies on pollination efficiency of bee species on various crops need to be conducted in each of the beekeeping areas.
- Government should provide more incentives to bee farmers in the form of bank loans or more subsidies on bee hives including transportation cost on migration of colonies.
- A systematic training program on all aspects of beekeeping/bee breeding, honey extraction and obtaining other by-products (wax, venom, propolis etc.) be initiated at important locations where well established apiaries are available.
- Bee parks for honey bees where farmers can keep their bee colonies temporarily during lean/dearth period may be made available.

- Scientific methods of extraction of honey from wild colonies be evolved and promoted, particularly in forest ecosystem.
- Lack of proper quality control for the production of honey, proper pricing policy, packaging, processing and storage of honey are serious constraints to be addressed.
- Infrastructure facilities for disease analysis, prevention and control need to develop at regional level. A registration process of apiaries should be in place to certify and declare the apiaries as disease free for migration. Similarly such apiaries should only be allowed to sell queens and bees all over India.
- There is an urgent need for appropriate coordination between all agencies engaged in promotion of beekeeping including quality control of honey. For trainings of beekeepers, Farmer Field School approach may be adopted.

Meeting with women farmers working on IPM in Nidana, Jind

# 7 AGRICULTURAL EXTENSION

Agricultural extension plays a pivotal role in promoting agricultural technology and increasing food security. It is a rural support service needed to meet the everyday challenges agriculture is confronted with. To make it more vibrant and dynamic following suggestions may be taken on priority basis.

- KVKs need to work more aggressively with private sector in technology assessment and refinement (TAR) and develop FAQs database for easy and correct responses on toll free help lines. Cell phone based advisory services (on weather, pests, diseases, cultivar choices, seed and markets - contents etc.) should be made mandatory for each of the KVK and the DDA in the district and work in close collaboration with each others.
- Promote system based technical advisories to farmers using Information and Communication Technologies (ICT).
- Develop viable demonstration units for on-hand training in farming systems perspective with emphasis on diversification, resource conservation and value addition at SAUs to train students, farmers and other stakeholders.
- Undertaking holistic evaluation of selected executed projects in the areas of agricultural drainage, irrigation and watershed management and agro-forestry with a view to assess their effectiveness in achieving the targeted objectives.
- Strengthening the capacity of the SAUs, State Department of Agriculture and Irrigation Department to undertake training programmes to focus on improved on-farm water management using modern tools by the extension workers, farmers and other stakeholders.
- The research on the development of viable decision support system (DSS) is critical in revamping agriculture production in Haryana. The data bank will help in risk management by accurate planning, forecasting and early

warning. The information generation system for natural resources, new diseases and pests, market fluctuations and demands need to be strengthened at block level for micro-planning.

- Women in Haryana are major work force in agriculture as they are involved in each and every activity of farming. They have little or no exposure to new ideas and technologies. Their skill improvement would have direct impact on technology adoption and enhancing agricultural production and productivity.
- Precision farming that includes seed treatment, use of quality seed, timely sowing, maintenance of optimum plant population, irrigation at critical stages of crop growth, INM, application of appropriate pest management practices etc. need to be vigorously promoted for enhancing productivity.
- The hands-on training to farmers, farm labourers and field functionaries on PHM, operation of biogas plant, vermi-compost units, integrated nutrient management, IPM, use of industrial wastes, pressmud, repair and maintenance of implements/farm machines, value addition technologies etc. will have direct impact on enhancement of farm income.
- Important features and provisions of different legislations *viz.,* Seed Act 1966, Biological Diversity Act 2002, Protection of Plant Varieties & Farmers Rights Act 2001 and Geographical Indications of Goods Act 1999 may be included in the package of practices of the State to make farmers and field functionaries aware.
- Provision of incentives and awards to farmers and extension workers for the faster adoption/transfer of the technology should be there. Extension and training programmes for input suppliers for updating their knowledge need to be introduced.
- A Green Animal Environment Board (GAME board) with a mandate to formulate codes and practices based on the concept of green and clean technologies must be setup.
- There is need for creation of 'Kisan Vikas Kendra' for knowledge dissemination/ extension services.
- There should be increased use of FYM, organic manure, green manure,

crop residues and follow up proper crop rotations with the inclusion of legume/green manure in cereal-cereal rotation.

- Need to search and research the major constraints which are responsible for yield gaps.
- Need to modify/multiply and distribute the small farm implements and tools developed by several institutes and SAUs which are women friendly to carry out various agriculture operations.
- Farmers' participation in agricultural extension can be decisive and crucial. Farmers need to be associated in extension activities and they should be recognized as co-extension workers. In each of the villages, at least two-three youth may be trained to work as technology ambassadors.
- Zone/ micro-zone specific technologies need to be identified and transferred. The package of practices should be developed based on requirements of specific zones.
- Concept of development of **"Smart Village"** needs to be promoted. Water smart village, solar energy smart village, agri-processing smart village, dairy smart village, smart village for judicious use of pesticides, smart village for bio-waste management etc be developed. Such villages can work as live demo / examples for farmers.
- The extension functionaries need to emphasize consistently up on the promotion of water saving and bio-waste management technologies. Water conservation techniques be promoted in villages for which government is also providing financial help.
- Agricultural graduates and certified persons should be given license for the sale of agri-inputs ( seed, fertilizer, pesticides & related tools). These license holders can work as technology guide to farmers also.
- "Nidana" model for pests' control without chemical pesticides in cotton be promoted. Such models for other crops may be developed with the help of farmers.
- Awareness about the benefits of protected cultivation be created amongst farmers by extension agencies.

- To retain youth in agriculture, small scale units for agricultural processing at village level be developed. Trainings for skill development of youth be organized so that they can be able to start their own units and market the products. Certificate and short training courses on developing business models, financial models, market chains be initiated for rural youth and also for start-ups.
- The progressive farmers are now looking for increasing their reach in domestic and global markets. Extension agencies must train farmers and empower them with knowledge of markets and import-export rules and regulations.
- There must be a hub of energy efficient machines and tools at block levels so that farmers can use costly machines on custom hiring basis to reduce the cost of cultivation.
- The extension agencies need to identify farmers using good agricultural practices and promoting diversification in agriculture. Incentives be given to such farmers.
- There must be some benchmarks/targets for ADOs to contact farmers and creating awareness about new technologies and also about schemes of the government related to farmers.


Chairman HKA during Kisan Mela

# 8 AGRICULTURAL MARKETING

Agricultural marketing plays an important role ensuring higher level of income for the farmers by regulating marketing functions in efficient and orderly manner. It guarantees better prices to the farmers for their farm produce and motivates them to invest more and more in production process. To make agricultural marketing system more efficient and dynamic the State may take following actions/ activities:

- Agriculture markets require integration, scale economy, and elimination of a large number of middlemen and transactions. This requires entry of more and more large sized players, and new investments in agricultural markets. The State should facilitate private investments and check market inefficiency through competitive marketing environment.
- Most of the reforms needed in agricultural marketing have been proposed in the model APMC Act prepared by the Ministry of Agriculture, Govt of India. This act needs to be implemented in true spirit of competitiveness.
- Sale of farm produce through regulated APMC should remain as one of the options but not the only option for sale of farm produce. Direct purchase and contract farming by big business houses and mega malls operating in Haryana may be encouraged for the benefits of consumers and producers.
- Allow and promote integrator (assembler) in all agricultural commodities to collect small marketable surplus from producers and sell it on their behalf in mandis.
- Promote alternative models of marketing like producer's organizations and producers' companies to impart bargaining power, bypass middlemen and fetch better prices for farm produce. Mechanism like producer-industry linkage will be highly helpful in this endeavor.

- Rationalize taxation structure on farm produce to check diversion of marketed surplus to neighboring states and keep taxes at moderate level to attract agri-business to state markets. Effort should also be made to avoid multiple taxations as in case of cotton and it's by product.
- Market models in the form of Apni Mandi or Kisan Bazar may be set up in all towns with reasonable population.
- About one tenth of facility and business space in Agro-Malls should be reserved for producers' organizations like farmers cooperatives, farmers companies. This should include space in agro-malls, market yards, shops for commission agents and other facilities. This will promote competition with private traders.
- Licenses and other requirement for agri –business should be liberalized.
- Warehouse receipt offers opportunity for meeting credit need in post-harvest period and taking advantage of higher price in lean period. State should popularize and encourage farmers to take advantage of warehouse receipt system.
- Farmers should be educated about higher value realization for their produce through grading, cleaning, sorting, packaging, quality production, branding and secondary agriculture. State should facilitate value addition through such activities at production sites.
- A part of revenue earned by Mandi Board should be used for R&D and building their institutions like producer association or companies.
- The state of Haryana should set up a price forecast and Market Research Cell in CCS Haryana Agricultural University to prepare price advisories and market intelligence for the farmers.
- A modern state-of-the-art wholesale market for vegetables and fruits should be set up by the Agriculture Produce Market Committee (APMC) in Gurugram, Jhajjar & Sonipat. It will give quantum jump in the fee of the APMC and save Delhi from pollution.
- HDDCF has allotted milk booths in all sectors and locality of the States. Along with these booths small place may be provided to market vegetables

and fruits. Consumers coming for milk purchase will be captive buyers for fruits and vegetables too.

- Processing needs special attention through incentives, special packages, training in processing and production of processing specific quality produce, establishment of service centers and facilitate marketing of small scale agro-processing industries products. Emphasis of agro-processing units should be on multiple commodities complexes rather than individual commodity approach.
- Creation of assembly centers with cleaning, grading and storage facilities in and around a cluster of villages needs to be encouraged in public private partnership to decongest existing mandis thereby making them more hygienic and attractive.
- Development of roadside markets especially along the highways at appropriate distance/ places will be helpful to farmers in fetching better prices and provide easy access to consumers to fresh produce.
- Marketing of high quality, GAP certified produce may be encouraged through Electronic Auction Mechanism both for domestic consumption and export purposes for suitable price realization to the growers who often invest huge amounts of initial capital for the construction of protected structures and other allied facilities. Cluster farmers themselves involved in critical decision-making of overall transparent marketing system.
- There is an increase in the marketable surplus ratio of bajra in Haryana indicating more availability of grains in the market. This marketable surplus can be put to the alternate uses by industry including developing value added products, health foods, poultry feed, roof material, drinks etc. Hence, there is a need to develop specific hybrids which meet the needs of various stakeholders.
- CCSHAU, Hisar and LUVAS, Hisar should strengthen processing and value addition facilities for branding and marketing of products on the pattern of NDRI.
- Opportunities for the export of surplus *bajra* & *basmati rice* be explored.

- To make farmer, producer-cum-processor, technological and financial support need to be provided and also help in marketing of value added products.
- The competition for the development of class products can be created by assuring intellectual property rights and incentives to inventors. Branding of products (with registered trademark and logo) including organic products, bio-tech products, rice, baby corn, mushrooms, bio-fertilizers, honey, vegetables, fruits etc would attract stakeholders from inside and outside the country. HSDC has popularized crop seeds under brand name "HARYANA BEEJ".
- Agricultural prices are often volatile and farmers are not so well organized to regulate supply of their produce. Thus, minimum support price (MSP) for major agricultural commodities, including some important vegetables like potato, onion and garlic with effective procurement system has to be ensured. MSP should be at least 1.5 times to the cost of production. There should be a dedicated system of procurement and prompt payments to the farmers.

Meeting with women farmers' working on IPM in District Jind

# 9 MAJOR POLICY ISSUES

The important policy issues for the benefits of the farmers and the farming as a whole are given below. Action on these issues will be helpful in restoring lost glory of agriculture making it a place of pride and privilege.

- The Haryana Kisan Ayog was established on 15th July, 2010 need to be strengthened to address the concerns of farmers, including women and youth.
- There is need for effective coordination and accountability among different institutions, relevant State Government Departments, Central and other developmental agencies and stakeholders to find solutions of complex and interlinked problems of natural resource management to sustain growth of agriculture in the State.
- Providing incentives to farmers for crop diversification and creating enabling environment for promoting industries and market support for the promotion of crops like maize, *guar*, soybean, sunflower, castor, groundnut, autumn sugarcane and pulses.
- Strengthening of input delivery mechanism for ensuring quality inputs in adequate quantity, at affordable prices and right time/place to increase SSR in different crops.
- Due care should be given to environment and safety measures/mechanisms such as safe disposal of plastics and any other harmful chemical or wastes as per environmental and Global GAP stipulations.
- Water and power pricing need to be rationalized for their economic and efficient use.
- Convergence of various programmes and schemes of different

departments and agencies needs to be ensured to harvest full benefits through synergistic effects and better utilization of resources by avoiding duplication and over-lapping.

- Haryana has a good potential for the export of value added agricultural commodities and to realize this, a suitable policy for food processing is required to ensure better realization to farmers, minimization of Post-harvest losses, employment generation and more investment in creation of infrastructures for production and post production agriculture.
- The general concern of division of land below an economic level (around 1 ha) results in unviable holdings. Since further fragmentation is not in the interest of overall agricultural growth of the State, law on minimum land holding is urgently warranted, for which a policy decision by the Government has to be taken being a matter of great concern.
- There is often problem of excess flood water during the rainy season in Ghaggar basin. Often, flood water destroys standing crops, roads, canals, other infrastructure etc. and disrupts normal life in many areas. This problem can be resolved by initiating a joint national project by Governments of Himachal Pradesh, Punjab, Haryana and Rajasthan and avail 90 per cent grant from the Central Government. This national project should be kept outside the Inter-State surface water disputes.
- Diploma course for input suppliers and training to the existing input dealers from time to time to update their knowledge base as they are the closest extension agents to reach quickly to the farmers. Furthermore, policy may be inframe to provide agri-input licenses to agri graduates only.
- There should be heavy punishment to control various malpractices related to supply of substandard and spurious inputs to the farmers.
- There should be proper display board in the shop as well as online information of private dealers about the details of chemicals & other inputs availability along with telephone numbers of officers of Department of Agriculture.
- There is a need to strengthen the "Kisan Clubs" with infrastructure and technical support.

- Good cultivable land be protected from non-agricultural uses. Also scientific land use be ensured.
- Strict Enforcement of Ground Water Draft Bill, 2008 and Preservation of Sub-soil Water Act, 2009 including speedy completion of irrigation projects.
- Protection of valuable agro-biodiversity and establishment of organized timber markets.
- Incentive for promotion and use of non-conventional sources of energy.
- Increased investment in research for development and promotion of Agro tourism/ farm tourism.
- Emphasis on strict enforcement of all laws/rules/regulations.
- Agribusiness services through agriculture graduates/ trained farm youths and incentives and awards to encourage innovators & performers.
- Provision for short term credit against produce and provision for consumption credit.

A view of the Seminar organized by HKA

# LIST OF REPORTS

**(All reports are available on our website (www.haryanakisanayog.org)**

A. **Reports Submitted to the Government** (in Hindi and English)

1. Haryana State Agriculture Policy
2. Conservation Agriculture
3. Policy Issues and Options Based on Interface with Farmers
4. Fisheries Development in Haryana: Status, Prospects and Options
5. Development of Horticulture in Haryana
6. Development of Protected Cultivation in Haryana
7. Natural Resource Management for Haryana
8. Development of Animal Husbandry in Haryana
9. Productivity Enhancement of Crops in Haryana
10. Rainfed Area Development in Haryana
11. Linking Farmers to Market in Haryana
12. Post-harvest Technology and Value Addition in Haryana
13. Report on Issues and Options for Agricultural Research and Development

**B. Reports in Progress**

1. Working Group Report on Agricultural Extension in Haryana
2. Promotion of Honey Beekeeping in Haryana
3. Working Group Report on Diversification of Agriculture in Peri-Urban areas of Haryana
4. Working Group Report on Animal Nutrition Pertaining to Milk Cattle & Buffaloes in Haryana

**C. Proceedings**

1. National Workshop on Farmer-Led Innovations
2. Stakeholders Workshop on Horticulture Development in Haryana
3. Prosperity through Diversification in Haryana
4. Opportunities for Youth in Agriculture
5. Post Harvest Technology and Value Addition in Haryana
6. Promotion of Honeybee Keeping in Haryana

**D. Newsletter**- Quarterly published (in Hindi and English)

**E. Farmers Assistance Booklet-** Schemes related to farmers of Haryana (in Hindi)

**F. Activities at A Glance**

**G. Farm record and account** (in Hindi)

**H.** Success Story of women farmers working on IPM in District Jind (in Hindi)

# ACRONYMS

| | | |
|---|---|---|
| AICRP | : | All India Co-ordinated Research Project |
| AICRPDA | : | All India Co-ordinated Research Project on Dryland Agriculture |
| AnGR | : | Animal Genetic Resources |
| APC | : | Agro-Processing Centre |
| APMC | : | Agricultural Produce Market Committee |
| CA | : | Conservation Agriculture |
| CAZRI | : | Central Arid Zone Research Institute |
| CCA | : | Canal Command Area |
| CCSHAU | : | Chaudhary Charan Singh Haryana Agricultural University |
| CIAH | : | Central Institute for Arid Horiticutlure |
| CPRs | : | Common Property Resources |
| CSSRI | : | Central Soil Salinity Research Institute |
| CSWC&RTI | : | Central Soil & Water Conservation Research Training Institute |
| DSR | : | Direct Seeded Rice |
| DSS | : | Decision Support System |
| ETT | : | Embryo Transfer Technology |
| FMD-CP | : | Foot and Mouth Disease Control Programme |
| FYM | : | Farm Yard Manure |
| GAP | : | Good Agricultural Practice |
| GIS | : | Geo-graphics Information System |
| HAFED | : | Haryana State Cooperative Supply and Marketing Federation Limited |
| HARSAC | : | Haryana Space Applications Centre |
| HDDCF | : | Haryana Dairy Development Co-operative Federation Ltd. |
| HLRDC | : | Haryana Land Reclamation & Development Corporation |
| HSDC | : | Haryana Seed Development Corporation |

| | | |
|---|---|---|
| ICAR | : | Indian Council of Agricultural Research |
| ICT | : | Information and Communication Technologies |
| INM | : | Integrated Nutrient Management |
| ITI | : | Industrial Training Institute |
| IVC | : | In-vitro Culture |
| IVF | : | In-vitro Fertilization |
| IWMP | : | Integrated Watershed Management Programme |
| KVK | : | Krishi Vigyan Kendra |
| LUVAS | : | Lala Lajpat Rai University of Veterinary and Animal Sciences |
| MDB | : | Mushroom Development Board |
| MGNREGA | : | Mahatma Gandhi National Rural Employment Guarantee Act |
| MSP | : | Minimum Support Price |
| NDRI | : | National Dairy Research Institute |
| NFSM | : | National Food Security Mission |
| NGO | : | Non-Governmental Organization |
| NHM | : | National Horticulture Mission/National Health Mission |
| NRLM | : | National Rural Livelihoods Mission |
| NRM | : | Natural Resource Management |
| ONBS | : | Open Nucleus Breeding System |
| PHM | : | Post-harvest Management |
| PPP | : | Public Private Partnership |
| PVY | : | Pashu Vikas Yojna |
| RKVY | : | Rashtriya Krishi Vikas Yojna |
| SHG | : | Self Help Group |
| TAR | : | Technology Assessment and Refinement |

# Activities of Haryana Kisan Ayog


भैंस मेला


केन्द्रीय भैंस अनुसंधान संस्थान
भैंस मेला एवं प्रदर्शनी


National Conference
Trends in Nanobiotechnology


Haryana Kisan Ayog

**Head Office**

## Haryana Kisan Ayog

Anaj Mandi, Sector-20, Panchkula - 134 116
Ph. : + 91-172-2551664, 2551764, Fax : +91-172-2551864
www.haryanakisanayog.org.