



Opportunity for Youth in Agriculture

Proceedings



Organized Jointly by:
Haryana Kisan Ayog
Department of Agriculture, Haryana
Indian Council of Agricultural research

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On

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Chairman
Haryana Kisan Ayog



FOREWORD

Employment generation for youth is a major challenge not only in India but also in other developing countries. India has world's largest youth population and, therefore, country has greater challenge to provide employment opportunities to all. Though educational attainments have risen quickly in the last few decades in rural and urban areas, gaining opportunities in the skilled labour market remains quite elusive for the rural youth. In rural areas, a large number of young people are invariably employed in nonfarm sector, whereas female counterparts do tend to get self-employed in agriculture and dairying, including general housekeeping activities.

In Haryana, creating employment opportunities for youth is becoming a major concern. Reducing farm profitability, degradation of natural resources and reduced size of holdings have further aggravated the situation. Therefore, Haryana Kisan Ayog had organized a few interactive seminars with youth and the progressive farmers to understand the issues concerning employment and income generation opportunities in order to retain them in agriculture.

During personal interactions with rural youth in Haryana, it has been observed that they are invariably not keen to take up agriculture as a profession, mainly on account of low income opportunities, poor physical infrastructure, medical facilities and lack of enabling environment. On the contrary, rural youth is more enlightened and keen to go for skill enhancement as well as specialty agriculture. As such, concerted efforts are needed to stimulate their interest in agriculture through skill development and required technical and credit help to promote their skills. The incentives for involving youth in agricultural education, research and extension and linking them with market opportunities will help considerably in building much needed confidence to take up agriculture as a profession.

For youth in Haryana, the core areas for skill development could be storage management, processing, grading and packaging, branding, marketing, agro-tourism, ICT, micro-management of resources, farm-waste management, hi-tech horticulture, dairying, poultry, value chain management, fish production, bee keeping, insurance, repairing and manufacturing of machines and tools, custom hire services for plant protection and field operations, etc. Also, there is an urgent need for introducing short-term certificate courses through vocational trainings for entrepreneurship development. In my view, the skill development Programs can further be supplemented by more comprehensive short and long-term financial, technical and market support systems to retain interest of rural youth in agriculture.

It is expected that this publication, covering the recommendations of the seminar on "Opportunity for Youth in Agriculture" organized by Haryana Kisan Ayog on 21 December, 2013 at Maharishi Dayanand University (MDU), Rohtak will generate required interest among rural youth to get attracted to agriculture as a profession. Also, the recommendations of the conference are likely to draw attention of policy makers to create enabling environment to retain youth in agriculture.

(R. S. Paroda)

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Proceedings of the seminar on "Opportunity for Youth in Agriculture" organized by Haryana Kisan Ayog on 21 December, 2013 at Maharishi Dayanand University (MDU), Rohtak

Inaugural and Technical Session I: Overview of Opportunities for Youth in Agriculture

Haryana Kisan Ayog organized a seminar on "Opportunity for Youth in Agriculture" on 21 December, 2013 at Maharishi Dayanand University (MDU), Rohtak in collaboration with Department of Agriculture, Haryana and Indian Council of Agricultural Research (ICAR), New Delhi. About 250 progressive farmers of Haryana and neighbouring States and also about 50 dignitaries/scientists from Department of Agriculture, Horticulture, Animal Husbandry and Fisheries, Government of Haryana, ICAR, Department of Agriculture, Government of India, CCS HAU, International Maize and Wheat Improvement Centre- Climate Change and Agriculture for Sustainability (CIMMYT-CCAFS) had participated.



Dr R. S. Paroda, Chairman, Haryana Kisan Ayog and Chief Guest inaugurated the seminar. The major focus of the seminar was to assess various options for attracting youth in agriculture. Reducing farm profitability, degradation of natural resources, reduced size of holdings and lack of interest of youth in traditional agriculture are currently the major challenges for which youth is not keen to practice agriculture. The average operational land holdings have reduced from 3.77 ha in 1970s to 2.23 ha in 2011. About 65% of the total farming families is small and marginal, owning 21% area of operational holdings. Due to the small size of holdings and degradation of natural resources, the



return on investment is gradually declining and farm employment options are also weakening. Attracting and retaining youth in agriculture is possible by empowering them with scientific knowledge, new technologies and market links supported with proper farm policies. Keeping all above issues into consideration, this seminar was organized.

The proceedings of the inaugural session were initiated with welcome address by Dr R. S. Dalal, Member Secretary, Haryana Kisan Ayog. He mentioned that the Chairman, Haryana Kisan Ayog Dr R. S. Paroda has continuously tried to closely review the farmer's problems and needs by organizing such Programs. He said that the energy and talent of the youth has to be properly utilized in agriculture. He mentioned that Dr Paroda is very keen to develop an enabling environment through opportunities for employment and better livelihood options for our farm youth. This seminar is infact an outcome of this vision. He welcomed the Chief Guest, other dignitaries, youth and progressive farmers.



This followed the technical presentations by senior experts like Dr K. D. Kokate, DDG (Agri Extension), ICAR, Dr J. S. Sandhu, Agriculture Commissioner Government of India, Dr A. K. Srivastava, Director NDRI, Dr M. L. Jat, South Asia Coordinator, CIMMYT-CCAFS and Dr Arjun Saini, Additional Director, Department of Horticulture, Govt of Haryana. The focus of all the presentations was to make farm youth and other stakeholders aware of emerging opportunities in various fields of agriculture.

Dr K. D. Kokate, while giving his presentation, told the house that there is large number of opportunities emerging for youth in agriculture. He said that India has 1/5th of world youth and, therefore, we have to create employment opportunities for them in different sectors of agriculture. The youth do not want to do the traditional type of agriculture; therefore, it is the duty of planners and the scientists to develop Programs which can enhance their skill so as to adopt advanced technologies. He said that we presently have 636 KVKs, which can be utilized for skill development of youth. He gave several examples where the farm youth have established their identity and enhanced their income by adopting advanced technologies. The important examples cited by him were Shergil Farm of Punjab for producing flowers and vermin-compost, floriculture nursery established by Sri J. P. Singh



in Muzaffer Nagar, off season vegetable farm at Lahul Spiti by Sri Raghuvir Singh, Pine apple farm established by a Lady farmer Miss Misao in Nagaland, tissue-culture banana farm in Lucknow, quality seed production in poly houses at Nashik, vegetable production in PPP mode in Rajasthan under KVK, Chomu integrated farming system adopted by Sri Sadanand in Odisha, Mushroom production by a Lady farmer at Nalanda etc.

Dr A. K. Srivastava in his presentation told the house that the small farmers and the farmers living in rainfed areas are the major stakeholders of technologies with regard to animal husbandry and dairying, because these sectors are capable of generating huge employment and enhanced income for better livelihood. He said that nearly 70% milk comes from small farmers and, therefore, skill improvement of such farmers is comparatively more important. Haryana can become a very important centre for the supply of milk and milk products in national and international markets. Therefore, there is need to make farmers aware about the importance of keeping efficient animal breeds and good quality animals for milk and meat production. He suggested that Sahiwal and Tharparker breeds of cow and Murrah breed of buffalo are very useful and economic. Similarly, efficient breeds of sheep and goat can be promoted and the youth can be trained for this purpose. There are opportunities for the development of various value added products, packaging, marketing, production of mineral mixtures for animals, establishment of cooperatives/self-help groups, production of small equipments, establishment of dairy farm and farms of pure breed bulls/cows/buffalos.



Dr M. L. Jat, in his presentation, emphasized upon adoption of conservation agriculture, diversification, farm-waste management, optimization of technologies and promotion of innovations. He said that in these areas, considerable employment avenues for youth can be generated, beside benefit of resource conservation and reduced cost on inputs.

Dr Arjun Saini emphasized upon promotion of horticulture in different areas of Haryana keeping in view the market requirement and also for required diversification. He said that horticulture can provide substantial employment in the areas of quality seedling production for fruits and vegetable crops, processing and value addition, marketing,

packaging etc. He informed the house that Government of Haryana and the Government of India have introduced several schemes to help the farm youth who are opting for horticulture. The youth can also choose micro-irrigation, fertigation, polyhouse construction including their maintenance etc as their profession.

Dr J. S. Sandhu mainly emphasized for the need of farm youth to be more careful toward the development and demands at the national and global level in agriculture and accordingly they should try to enhance their skill. He said that there is emphasis upon adoption of farm mechanization, water management technology, ICT, hybrids seed production etc. These areas are skill oriented and income generator. Therefore, the time has come to up scale the knowledge and skill of youth to harness ample emerging opportunities.



Dr R. S. Paroda, while inaugurating the seminar thanked the officers and functionaries representing ICAR, Department of Agriculture, Government of India, Department of Agriculture, Horticulture, Animal Husbandry, Fisheries of Government of Haryana, CCSHAU, Hisar etc. for their participation in the seminar. He said that all those present are interested to provide better opportunities to farm youth.

He highlighted the need for planners and scientists to formulate appropriate projects and developmental programs keeping in view the needs of youth farmers so that requirements of enhancing agricultural production and generation of employment can be properly addressed. He said that retaining youth in agriculture is a challenge for all of us in this swiftly changing world. Our youth is well informed and, therefore, their expectations for a better life and amenities are fully justified.

He emphasized upon having direct interaction with farmers to find out possible solutions to attract youth in agriculture. He opined that it is the responsibility of planners and scientists to create an attractive environment and opportunities for youth to be retained in agriculture. The youth want honorable status with better income. They do not

wish to continue with traditional way of agriculture and, therefore, we have to think seriously to bring a change at all levels. Since agriculture is the largest employer of manpower, we have to build further the capacity of youth to be more responsive in future.

Dr Paroda further pointed out that the declining interest of rural youth in agriculture is directly related to existing poor physical amenities, socio-economic conditions and lack of enabling environment. On the contrary, it is quite encouraging to note that some enlightened youth in Haryana are taking up innovative approaches through diversified agriculture and by initiating agri-business related activities. Many of the farm youth have developed innovative skills for technology generation, transfer and adoption. However, concerted efforts are still needed to stimulate their interest further by expanding their horizon. Proper incentives for their involvement in agricultural education, research and extension and by linking them to the expanding markets will have positive effects in attracting youth in agriculture.

He emphasized on skill development of farm youth as per emerging employment avenues. He said that earlier, seed, pesticide, fertilizer and farm machinery were the only potential sectors to employ agricultural graduates/rural youth. Now new opportunities are emerging in IT linked agri-extension, seed technology, biotechnology, food processing, cold storage, packaging, supply chain management, insurance and farm credit. Private sector and NGOs are also engaging the rural youth. In this context, we now need greater thrust on vocational training of youth (including women) for relevant skill acquisition and greater confidence building to serve as Technology Agents; as well as efficient knowledge/service providers. He exhorted agri-stakeholders to change their mindset from "Technology Innovations" to "Business Innovations".

Dr. Paroda also suggested that the planners and scientists must come out to promote remunerative farming systems, secondary agriculture including processing and value addition technologies and linking farmers with market. He said that the women in agriculture play a vital role at all levels of agricultural operations. Therefore, their efficiency has to be enhanced by empowering them with knowledge and with technology acquisition through vocational training and exposure visits. It has been experienced that the adoption of technology is faster when women are empowered with knowledge. The self-help groups (SHG) run by youth, especially by women, have helped in the establishment of several small scale industries as well as small entrepreneur activities which generate honorable employment and enhanced income opportunities. Similarly, the up scaling of innovation is also faster through youth involvement. He concluded by

saying that youth is our prime asset and hence future of our nation would depend on their empowerment.

Sh. Brijendra Singh, IAS, Director Agriculture, Haryana, while presenting the vote of thanks, lauded the efforts of Dr R. S. Paroda, Chairman, Haryana Kisan Ayog for bridging the gap between planners and the stakeholders particularly the farm innovators, rural youth, women self help groups (WSHG) and the farmers involved in fish farming, protected cultivation, mushroom production,



poultry farming, dairying etc. He said that these initiatives will certainly help the Government of Haryana in better planning in order to help the farmers in providing better opportunities to establish agriculture based industries in the State. In turn, this will help in retaining the rural youth in agriculture. The Director Agriculture also appreciated the efforts of Haryana Kisan Ayog for drafting an innovative agriculture policy for the State. He was hopeful that the policy will be accepted by the Government soon. He suggested that such type of seminars be organized more frequently for identification of innovators and entrepreneurs. He thanked one and all for the participation in the seminar and hoped that deliberations and recommendations of the seminar will provide proper directions to the government.

Technical Session II: Young Farmers' Innovations for Resilient Cropping and Income Generation

Chair: Sh. J.S. Sandhu, Agricultural Commissioner, Govt. of India

Conveners: Dr S.S. Siwach, Director Research, CCSHAU, Hisar

Dr Rajbir Singh, Principle Scientist, NRM Division, ICAR, New Delhi

Five Innovative young farmers presented their views and shared rich experiences on new innovations for resilient cropping system and income generation.

Shri Harpreet Singh, a young farmer from village Beer Narayna, Karnal, shared his innovations and successful experiences of growing rice using Direct Seeded Rice (DSR) technology. He emphasized that DSR is a successful technique of rice cultivation which uses less water and can address the problems of labour scarcity as well as electricity shortage. He also pointed out that DSR is helpful in



increasing the yield of succeeding wheat crop by 2.5 to 3.7 q/ha mainly because of timely planting. He advised fellow farmers that they should take proper training and knowledge about package of practices of DSR before adopting it. He shared his experience and emphasized that DSR is a risk management strategy as it can tolerate water shortage than conventional till puddled transplanted rice. He urged the researchers to develop an effective weed management practice for DSR which is emerging as a constraint in popularization of DSR. While sharing his experience with *turbo happy seeder* (THS), he informed that sowing of wheat by it after rice is helpful in conserving water, soil and also helpful in mitigating terminal heat effects. In the end, Sh. Harpreet Singh urged the Government to provide subsidies on multi-crop zero till planter which is helpful to the farmers for more precise planting of different crops using the same machine.

Shri Manoj Kumar a young farmer from Taraori, Karnal, shared his experiences on conservation agriculture and the model of adaptation and innovations in scaling-out of new technologies through “Farmers Societies”. He emphasized that conservation agriculture has the potential to raise the income of farmers by curtailing the production cost, improving resource use efficiency and timeliness of operations. Sh. Manoj shared that sowing of wheat by *Turbo Happy Seeder* is helpful in mitigating terminal heat

effects. He also mentioned that growing berseem with wheat (dual purpose wheat) and taking one cut for green fodder at 55 days after sowing can fetch Rs 5000 per acre extra income to farmers and meet his green fodder requirement. He also shared his views on intercropping in sugarcane for better profits and efficient use of resources. He informed that sugarcane can be planted with wheat as intercrop in the end of October or in the beginning of November (autumn planting) with the help of raised bed planter at a distance of 90 cm. Based on his experience, he recommended that growing of crops like garlic, potato, onion and coriander as intercrops is a remunerative system for small and marginal farmers. He stressed upon the need for mechanization in sugarcane cultivation. During the discussion, the custom services for sugarcane harvesting were also emphasized.

Shri Harvinder Singh, a young farmer from Sijatpur village in Ladwa block of Kurukshetra, shared his experiences on innovations in diversified cropping system. He informed that rice-potato-spring maize is a profitable cropping system compared to conventional rice-wheat system. With this crop rotation, he claimed to reach the maize yield up to 10 tons per hectare. He elaborated on how he increased his net income 83,000/- per acre with rice-potato-maize and pointed out that there is good possibility of taking two maize crops and two potato crops in a calendar year if maize is introduced in the rice-wheat cropping system. He further emphasised that there is vast scope of marketing of potato seed in the region. He also opined that poplar cultivation with intercropping is a suitable way to conserve natural resources on one hand and sustainable intensification on the other. He called upon the young farmers to take agriculture and allied sector for income and profit generation.

Shri Amrik Malik, a young and energetic farmer form Hajwana village in Pundri block of Karnal, shared his experience on diversification with cotton-wheat system. He told that how he was criticised by his fellow farmers when he started this approach and now many farmers are willing to adopt this practice. He elaborated his technology of direct sowing of cotton which solved the problem of crust formation and spray of 'roundup' solved the problems of weeds in cotton. He also shared his experience of relay sowing of wheat in standing cotton. He



elaborated on sprinkler system in rice and plantation of cloned *safeda*. He emphasised on conservation agriculture and coined a new slogan in Haryanvi language (*Bina Baha aur mauj bana* : without tillage - you can cultivate and make merry). He also urged farmers to produce their own fertilizer by establishing Vermicompost units.

Shri Vikas Chaudhary, a young and progressive farmer from Taraori, Karnal, shared his experiences on conservation agriculture and innovative model of adaptation and scaling-out of new technologies through Farmers Societies. He emphasized that conservation agriculture has the potential to raise the income of farmers by curtailing the production cost, improving resource use



efficiency and timeliness of operations. He explained in detail how farmers got attention from various agencies involved in agriculture by forming the Farmers' Society. Vikas shared his experiences on diversification of rice with *kharif* maize which was not only economically viable but also saved 90% water compared to rice. He also shared his experiences on new tools and techniques (Nutrient Expert Decision Support System, Green Seeker etc) for precise nutrient management for improving productivity, profitability and nutrient use efficiency. He urged the farmers to come forward to adopt new techniques for saving of inputs and reduce the cost of cultivation. He expressed his views on attracting youth in agriculture and young farmers have great role to play for precision agriculture for better utilization of inputs on one hand and sustainability of the system on the other.

Key recommendations from the session

Conservation Agriculture (CA)

Agriculture is currently facing serious challenges of yield plateau, resource fatigue, deteriorating environment and climate change. In this scenario, conservation agriculture is likely to be the futuristic agriculture to address these challenges. Further, technologies related to conservation agriculture have revealed good potential to arrest water depletion, save labour and energy, deteriorating soil health, reduce considerably the cost of production. To popularize CA practices, following points emerged:

- Looking into the labour scarcity, youth should be encouraged to start Custom

Hiring Centres (CHCs) in villages and required machinery like multi-crop planter and turbo happy seeders be provided on subsidy to provide such services.

- Farmer's Cooperatives and Associations can play an effective role in the dissemination of new technologies and hence these be encouraged to attract youth in agriculture.
- Progressive farmers be encouraged to use their farms as Centres of Excellence and used for providing training to other farmers for proper exposure and confidence building.
- Operation of turbo happy helps in uniform spreading of straw and thus residue burning can be avoided. For uniform spreading of straw, the straw management system (SMS) attachment to all combine harvesters be made mandatory.
- Innovations by farmers be protected through provision of Intellectual Property Rights (IPRs).
- Scientist-innovative farmer's interaction must be strengthened so as to get proper feedback about the field performance of the technology and to access the need for required refinement/up-scaling of farmers led innovations.

Resilient rice-wheat cropping system

Results of experiments and demonstrations have clearly revealed that direct seeded rice (DSR) is an option to successfully combat the problems related to scarcity of water, labour and electricity with no yield penalty. DSR facilitates 20-25% saving in water; besides less disease incidence and this practice has the potential to increase the yield of succeeding wheat crop by over one quintal per acre. For promotion of DSR, following points emerged:



- There is an urgent need of capacity building at all levels to impart proper training and dissemination of full package of DSR to the farmers
- Large scale demonstrations to convince farmers about DSR and mass campaigning through radio and TV Programs to highlight its benefits.
- For better crop establishment of DSR, laser levelling should be encouraged for better results
- There is urgent need to develop low cost and effective herbicides and integrated weed management practices for effective control of weeds in DSR
- In light textured soils, DSR crop may suffer due to iron deficiency which can be corrected with the spray of Iron Sulphate. This aspect needs to be highlighted.
- For sustainable intensification of rice-wheat system, inclusion of short duration moongbean should be encouraged either through relay planting or ZT (zero till) situation using ZT planter

Resilient sugarcane based cropping system

- The mechanization of sugarcane cultivation is urgently needed to reduce the cost of labour in harvesting, detrashing, loading and transportation.
- Encourage autumn planted sugarcane (end of October or in the beginning of November) as an intercrop with wheat using raised bed planter. In this system, sugarcane needs to be planted at a distance of 90 cm. The sugarcane seed must be put in furrows and covered with light soil and then apply irrigation. Sugarcane based cropping system can be made highly remunerative by intercropping sugarcane with cereals/oilseeds/pulses/vegetables. The intercropped sugarcane + wheat give higher yields and income compared to wheat-sugarcane cropping sequence.
- Encourage new methods of sugarcane planting like ring-pit or trench to make sugarcane crop more profitable.
- Encourage intercropping of garlic, potato, onion and coriander in sugarcane for higher profitability of small and marginal farmers
- For proper fertilization of ratoon crops, encourage use of off-baring-cum-fertilizer applicator machine for improving productivity as well as nutrient use

efficiency of ratoon crop.

- The microirrigation system and sustainable use of inputs are to be encouraged for higher productivity.

Resilient cotton-wheat system

- Encourage relay cropping of wheat in standing cotton to increase wheat productivity of cotton-wheat system
- Design and development of proper machines for facilitating relay sowing of wheat in cotton
- Prototype development of high clearance tractor for ease of relay sowing of wheat
- Demonstration be conducted for high clearance tractor mounted on frame for relay sowing of wheat in late planted Bt cotton
- Exploring the possibility of growing pulses with cotton for sustainable intensification is also required

Diversification for income generation

- Large scale demonstration to promote dual purpose wheat technology (co-culture of berseem with wheat, taking one cut for fodder at about 55 days) which can fetch Rs 5000 per acre extra income to the farmers besides addressing the issue of green fodder scarcity for crop-livestock system.
- Industry support is needed to popularize maize as a potential alternate to rice for diversification
- Promotion of permanent bed planting in maize-wheat system for resource conservation is required
- Strengthening Self Help Groups (SHGs) and cooperative societies to promote and support diversification and linking farmers to market
- Support for installation of vermicomposting units need to be provided
- Empowering of women-farmers for decision making in farm activities and encourage SHGs and other women societies to promote of diversification
- Integrated farming system (IFS) need to be encouraged by combining need based location specific components of crops, vegetables, flowers, tree, livestock,

fisheries, poultry, mushroom, bio-gas units etc for food, nutritional and livelihood security

- Promotion of agro forestry system in a suitable way to conserve natural resources and environmental footprints is necessary for agricultural sustainability
- Strengthening market intelligence network for making diversification a successful business

General comments for attracting youth in agriculture

- Popularization of advance tools and techniques (Nutrient Expert decision support system, Green Seeker etc) for precise nutrient management for improving productivity, profitability and nutrient use efficiency
- Training of young farmers for use of computer based systems (user friendly) leading towards precision agriculture
- Development of user friendly tools and techniques for farmers
- Training and up-skilling rural youth for entrepreneurship development
- Training of rural youth for making them empowered to adopt climate smart agriculture and proper use of agro-advisory services in case of climate extremes
- Development of climate smart villages involving rural youth
- Promotion of schemes for rural hygiene and development of agro-tourism involving rural youth

Technical Session III: Youth Farmers' Experiences on Livelihood Opportunities for Farm Youth in Secondary and Specialty Agriculture through Linking Youth with Market

Chair: Dr R. S. Paroda, Chairman, Haryana Kisan Ayog, Panchkula

Co-Chair: Dr M. L. Chadha, Consultant, HKA and Dr Arjun Singh, Addl. Director, Horticulture, Govt. of Haryana

Conveners: Dr D. K. Sharma, Director, CSSRI, Karnal and Dr Yash Pal Sahrawat, Scientist, IARI, New Delhi

In Technical Session III, six presentations were made by progressive farmers from Punjab, Haryana and Himachal Pradesh highlighting their experiences and success stories.

Sh. Bijender Singh, farmer from Karnal, stated that adopted protective cultivation for vegetable farming. He could harvest nearly 3 times more yield of vegetables such as tomato, capsicum and cucumber as compared to open field. He also adopted auto irrigation system to save water resource and at the same time to ensure higher productivity on limited land. He highlighted that a major concern in protected cultivation is due to increased attack by nematodes/diseases/pests, especially after the 3rd year. It should be possible to avoid this by cultivating the vegetable crops in rotation like capsicum\tomato\cucumber.

Sh. Gurpreet Singh from Patiala, Punjab highlighted the importance of floriculture in increasing livelihood opportunity. He has adopted floriculture over an area of 8 ha and is marketing marigold, gladiolus and rose. He has been earning about Rs. 6.25 lakhs/ha. Besides earning more money, he is able to maintain the soil health by growing flowers according to seasons.

Sh. Dinesh Kumar, a young farmer from Sonipat, Haryana diversified his agriculture to cultivate sweet corn and has been harvesting about 1000 to 12000 bags /ha. The diversification is providing him with an income of Rs. 3.0 lakh/ha. He is now an advocate of crop diversification in agriculture and is helping his neighbors to switchover from traditional cropping to sweet corn cultivation.



Sh. Jasbir Singh farmer from Panipat emphasized that growing of vegetables is more economical than rice-wheat system. He has harvested 80 tonnes of green onion on an acre of land. It fetched him an income of more than Rs. 1.5 lakhs. He visited several farmers', who are cultivating vegetables under protected structures, and has adopted now protected vegetable cultivation.



Sh. Vikash Benal, a young farmer from district Solan, Himachal Pradesh highlighted the importance of growing mushroom and mentioned that it is a profitable business as compared to agriculture or even orchards. He claimed that his turnover is Rs. 4 crores per year. He has his own canning unit of mushroom. He is now a producer, processor and marketer all in one. His main concern is that electricity charges and interest rate on loans for mushroom cultivation are higher and should

be made equal to that charged for agriculture.

Sh. Gurucharan Singh farmer from village Tungwala, Bhatinda (Punjab) explained the importance of honey bee. He entered in honey bees farming in a modest way with the help of KVK, Bhatinda. Currently, he is maintaining 2500 boxes and earning handsome profit from this new activity.

Remarks of the Chair:

In his concluding remarks, Dr. Paroda congratulated all the speakers for sharing their valuable experiences on livelihood opportunities for farm youth in secondary and specialty agriculture and by linking youth with markets. He lamented that farmers are unable to get good price of their produce. Therefore, he emphasized that now is the time for the young farmers to experiment various option for integrated farming linked with both processing and marketing. Through this approach only farmers would be able to get higher price of their produce.

Recommendations:

The following recommendations emerged from above presentations and discussions:

1. Good quality seedlings are pre-requisite for protected cultivation of vegetables. Therefore, state seed agencies should come forward and ensure timely supply of good

quality seeds/seedlings to the farmers.

2. Proper market linkage needs to be developed to provide livelihood opportunities for farm youth in secondary and specialty agriculture.
3. Cultivation of baby and sweet corn are profitable crops but currently grown only in a limited area and that too restricted to few villages. There is a need to upscale the cultivation of these crops over a larger area especially around Delhi, which is a good market for such specialty items.
4. In order to promote mushroom cultivation in the states, electricity charges, interest on bank loans and other taxes on mushroom production should be on par with agriculture.
5. Since the energy requirement for secondary agriculture is quite high, alternative sources of energy, especially solar energy should be promoted.
6. Training pertaining to secondary and specialty agriculture should be provided to young farmers to improve their knowledge and skill.

Technical session-IV: Young Farmers' Experiences on Livelihood Opportunities for Farm Youth in Livestock Farming- Moving Beyond Livestock Production

Co-Chairs: Dr K.M.L. Pathak, DDG (Animal Sciences), ICAR and
Dr G.S. Jakhar, DG Animal Husbandry & Dairying, Haryana

Convener: Dr Inderjeet Singh, Director, CIRB, Hisar

Speakers: Sh. Surjit Singh Malik, Village Umra, Dist. Hisar
Sh. Yuvraj Khurana, Bhiwani Road, Rohtak
Sh. Sultan Singh, Village Butana, Dist. Karnal

In this session, three presentations on i) new opportunities in animal breeding ii) Income opportunities through dairy processing/value addition and iii) Innovations in inland fish



production were made and lot of discussion generated after the presentations. Due to decreasing land-holdings, animal husbandry takes the centre stage as means of their livelihood. This not only provides daily cash through the sale of milk, but also provides periodic income through the sale of heifers, breeding bulls, as well as surplus male calves. In case of buffaloes, the surplus animals and

male calves meet the huge demand for meat export, which is witnessing phenomenal rise during recent years.

The scenario is even better for Haryana farmers since they are gifted with the world famous Murrah buffalo. Not only buffalo milk fetches higher price, but Murrah buffalo also command high premium over other breeds. As a result, buffalo population is constantly increasing. With the result, almost 85 percent of the milk produced in the state is contributed by buffaloes. The contribution of livestock in state's GDP through agriculture is pegged at 40-42 %.

Some noteworthy suggestions brought out by the farmers and participants during the discussion are listed below for consideration of the government so as to harness the benefits of animal husbandry.

Recommendations:

A) Livestock

1. The proposal to provide identification to high yielding buffaloes and cows for insurance purposes should be made more meaningful by adopting internationally acceptable format of identification. This will add value to superior animals, make impact of government schemes monitorable and pave way for rapid improvement in livestock productivity.
2. The owners of high-yielding buffaloes should also be provided certificates of the milk production recorded for identified animal during milk competitions. Recording should also be initiated for indigenous and cross-bred cattle.
3. The proposal to provide compensation to cows and buffaloes yielding over 7.5 Kg is considered highly appreciable, but the amount of Rs 40,000 for cows and Rs 50,000 for buffalos was considered less in view of their market price.
4. Hosting livestock shows and championships on a regular basis not only provide incentive to progressive livestock keepers but also motivate other farmers to rear good quality livestock. Therefore, this must be organized on an annual basis on the pattern of Punjab where National Livestock show is organized annually.
5. To upgrade the livestock population genetically, the large scale use of AI with superior frozen semen of best males is required. The current 60% coverage of buffaloes through AI needs to be further increased to cover the entire buffalo population.
6. Inbreeding must be avoided in livestock through more emphasis on AI with regular rotation of bulls in every district, as well as rotation of breeding bulls used for natural mating.
7. The subsidy on feed and fodder for rearing quality livestock be given because the cost of animal feed / ingredients is fast increasing.
8. The farmers cannot avail benefits of the incentives given for making animal shed under present norms. The requirement of land for availing animal shed subsidy should be withdrawn keeping in view the practical considerations.

9. There is strong need to develop cost-effective farm automation implements / aids of animal husbandry operations. The ICAR and CCS HAU can jointly draw a plan to undertake this task.
10. There is need to carry out free deworming and vaccination in livestock. Vaccination against FMD, HS and Brucellosis should be made mandatory.
11. The facilities for high quality vaccine production for the control of animal diseases in the state should be strengthened.
12. There is strong need for use of sex-sorted semen in cattle - particularly cross-bred/HF cattle, which cannot be met through imported semen. Therefore, the government should take steps to install semen sorting facilities or invest in research and development in this area.

B) Fisheries

The potential of fishery as an economically viable preposition for farmers is enormous and progressive farmers can make further improvements if appropriate support is provided to them. The house recommended as under:

13. The lease period for village ponds be increased from five years to ten years so that the entrepreneurs can invest in developing these ponds properly for fishery. The rates of water for fishery unit should be reduced from the current Rs. 240 per cubic feet to Rs. 40 per cubic feet as for agriculture / horticulture.
14. Fish seed production is facing the problem of inbreeding and there is need to overcome this through regular introduction of seed from other parts of the country.
15. The fisheries sector should be given due incentives as given in horticulture for its development. The provision of subsidy for erecting poly-houses for fishery in the state on the same lines as under Horticulture Mission is required.

Plenary Session: Key Recommendations of Different Sessions

Chair: Dr. R. S. Paroda, Chairman, Haryana Kisan Ayog

Co-Chairs: Dr. K. D. Kokate, DDG (Agri. Extension), ICAR, New Delhi
Sh. J. S. Sandhu, Agricultural Commissioner, Govt. of India

Convener: Dr. Indu Sharma, Project Director, DWR, Karnal

The plenary session covered mainly the important recommendations to retain youth in agriculture. The highlights of technical sessions along with thematic presentations covering issues, opportunities and road map for attracting youth in agriculture were presented by the conveners of the various sessions. It was generally viewed by participants and speakers that Indian



agriculture has to compete at international level and thus it has to be made technology driven. Further, it was argued that there is urgent need to develop backward and forward linkages in agriculture. Obviously, retaining large number of youths in this sector is crucial as they can focus on integration and promote technology based agriculture. The key recommendations emerged are:

1. Vocational trainings to rural youth in the potential areas like information communication technology (ICT), dairying, bee keeping, high value agriculture, processing, value addition, packaging, supply chain management, storage, nursery management, seed production, repairing of machines, organic agriculture etc. need to be given for entrepreneurship development.
2. The youth can opt to become technology agents. They need to be empowered with knowledge and scaling-up their skills in priority areas like specialty agriculture, high-tech horticulture, protected cultivation, IPM/bio-control, INM, bio-waste management, organic waste management, watershed management, dairying, fisheries, linking farmers with markets etc. The other potential areas are: product branding and marketing, insurance and agri-export promotion.
3. The custom hiring services for farm machinery is to be promoted in order to take forward the mission of small farm mechanization. Accordingly, youth must be

supported with technology and credit facilities to develop custom hiring centres.

4. Agri-clinics need to be established at block levels. The agricultural/veterinary graduates can run these clinics and accordingly youth may be supported by knowledge based empowerment and financial provisions for bankable projects.
5. “Farmer Cooperatives, SHGs, Clubs, and Producer Companies” can play a vital role in the dissemination of new technologies as a service window system and hence can attract youth in agriculture. Therefore, at initial stage, the financial and infrastructural support to these organizations will give boost in establishing service windows and provide employment to youth.
6. Farms of the progressive farmers, who are practising CA and other high-tech agriculture, should be recognized as “Centres of Excellence” to facilitate visit and training of other farmers for required confidence building. This will help in promoting use of conservation agriculture on larger scale.
7. Women play very crucial role in agricultural development. Retaining young women in agriculture by empowering them with new knowledge and technology will help a great deal. SHGs, Khet Pathashalas and other women societies need to be encouraged and supported well to play an active role.
8. It was suggested that agricultural graduates be given specialized training linked with distribution of licenses for the sale of inputs, machinery and tools, as is being done in case of pharmacy. It will help in proper technology transfer and use of quality inputs for productivity enhancement.
9. Integrated farming System (IFS), and emphasis on peri-urban farming, especially the cultivation of export oriented crops, vegetables and flowers will help in livelihood security.
10. The provision of compensation to cows and buffaloes yielding over 7.5 Kg is highly appreciable, but the amount of Rs 40,000 for cows and Rs 50,000 for buffaloes is somehow less in view of their market price. Hence, it will be desirable to revise this amount to attract youth in agriculture.
11. The lease period for village ponds is increased from present five years to ten years so that the entrepreneurs can invest in developing these ponds properly for fish production. The rates of water for fishery unit should be reduced from the current Rs. 240 per cubic feet to around Rs. 50 per cubic.

12. The fisheries sector is also given some incentives, as given to horticulture. The provision of subsidy for erecting poly-houses for fishery in the state on the same lines as under Horticulture Mission will help youth in opting fisheries as a profitable proposition.
13. A dedicated TV channel for agriculture to impart knowledge concerning new technologies would encourage youth to get involved in agriculture.
14. The house was of the view that there should be enabling policies for farm youth, including women, so that they build required confidence to take risk while taking up their own enterprise in agriculture.

Dr R. S. Paroda stated in his concluding remarks that **“we should be globally wise but act locally”**. He emphasised upon making agriculture as knowledge based and technology driven occupation. He opined that strong connect among planners-scientists-farm youth is now needed to implement schemes and Programs which can be helpful in generating employment in agriculture. He said that youth want to work with honour; therefore, we must give new dimension to agricultural profession. He said that Government of Haryana has already taken steps to encourage innovative farmers by establishing Agriculture Innovation Fund which will be operated by Haryana Kisan Ayog. These funds will be utilized to encourage those farmers/farm youth who have contributed towards new innovations but most of these innovations have to be validated and out scaled for benefit to the public.



Dr Paroda observed that there is no dearth of opportunities in agriculture as told by various speakers in different sessions particularly by Dr K. D. Kokate, Dr A. K. Srivastava, Dr M. L. Jat, Dr Arjun Saini, Dr J. S. Sandhu, Dr KML Pathak, Dr DK Sharma also reflected on the experiences shared by young farmers. He, however, emphasised the need for an effective system of training of farm youth. In his opinion, agriculture in Haryana is bound

to diversify. There must be an opportunity to generate self employment and to enhance income of the farm youth. He also expected that policy makers will support youth for integrated market oriented development (IMOD).

Dr Paroda assured that Haryana Kisan Ayog will take up all related issues of youth and see that needed financial, technical and policy support is extended for their proactive involvement for future agricultural growth.

Name and address of farmer speakers in the seminar

S.No.	Name of the Farmer	Address	Mobile No.
1	Sh. Harpreet Singh	VPO, Beer Narayna, Karnal	9466242313
2	Sh. Manoj Kumar	VPO, Taraori, Karnal	9416311118
4	Sh. Harvinder Singh	VPO, Sijatpur, Ladwa, Kurukshetra	9812133325
5	Sh Amrik Malik	VPO, Hajwana, Pundri, Karnal	9215130500
6	Sh. Vikas Chaudhary	VPO, Taraori, Karnal	9416032593
7	Sh. Bijender Phor	VPO, Sekhpura, Karnal	9996025129
8	Sh. Dinesh	VPO, Manoli, Sonipat	9813903850
9	Sh. Jagbir Singh	VPO, Babal, Panipat	9416048770
10	Sh. Gurcharan Singh	VPO, Tungwala, Bhatinda	9814749406
11	Sh. Gurpreet	Patiala	9872624256
12	Sh. Vikas Benal	Solan, HP	9418027651
13	Sh. Sultan Singh	VPO, Butana, Teh Nilokheri, Karnal	9812032544
14	Sh. Surjit Malik	VPO, Umra, Hansi, Hisar	9813542477
15	Sh. Yuvraj Singh	Bhiwani road, Rohtak	

Program
Seminar on
"Opportunities for Youth in Agriculture"
December 21, 2013,

Venue: Conference Hall, Directorate of Distance Education, MD University, Rohtak
21st Dec-2013

0900-0930	Registration	
0930-1100	Inaugural and Technical Session I: Thematic Presentations on Issues, Opportunities and Road Map for Attracting Youth in Agriculture Chief Guest & Chair : Dr R.S. Paroda, Chairman, Haryana Kisan Ayog Conveners: Dr M.L. Jat, South Asia Coordinator, CIMMYT-CCAFS Dr A.M. Narula, Zonal Project Director ICAR	
0930-0935	Welcome	Dr RS Dalal, Member Secretary, HKA
0935-0950	Emerging opportunities for farm youth : some success stories	Dr KD Kokate, DDG (Agri Extension), ICAR
0950-1005	Livelihood opportunities for farm youth in Livestock farming- moving beyond livestock production	Dr AK Srivastava, Director, NDRI, Karnal
1005-1020	Conservation agriculture for increased resource savings and income	Dr ML Jat, South Asia Coordinator, CIMMYT-CCAFS
1020-1035	Livelihood opportunities for farm youth through secondary / specialty agriculture	Dr Arjun Saini, Additional Director, Department of Horticulture, Govt of Haryana
1035-1100	Address by Chief Guest	Dr RS Paroda, Chairman, HKA
1100-1105	Vote of thanks	Shri Brijendra Singh, IAS, Director, Agriculture, Govt. of Haryana
1105-1130	Tea Break	
1130-1300	Technical session-II: Young Farmers' Innovations for Resilient Cropping and Income Generation Chair: JS Sandhu, Agriculture Commissioner, Govt of India Conveners: Dr SS Siwach, Director Extension, CCSHAU Dr Rajbir Singh, PS (NRM) ICAR	
1130-1140	Farmer-I: Innovations in conservation agriculture	Shri Harpreet Singh
1140-1150	Farmer-II: Conservation Agriculture	Shri Manoj Kumar
1150-1200	Farmer-III: Innovations for resilient crop diversification	Shri Harvinder Singh
1200-1210	Farmer-IV: Innovations for resilient Cotton-Wheat production system	Shri Amrik Malik
1210-1220	Farmer-V: Innovative ways for nutrient management	Shri Vikash Chaudhary
1230-1300	Open discussion and key recommendations	All
1330-1430	Lunch	

1430-1545	Technical session-III: Young Farmers Experiences on Livelihood Opportunities for Farm Youth in Secondary and Specialty Agriculture through Linking Youth with Market Co-Chairs: <i>Dr ML Chadha and Dr Arjun Singh, Addl. Director, Horticulture, Govt of Haryana</i> Conveners: <i>Dr DK Sharma, Director, CSSRI</i> <i>Dr Yash Pal Sahrawat</i>	
1430-1440	Farmer-I: Protected cultivation of vegetables	<i>Sh. Bijender Phor</i>
1440-1450	Farmer-II: Floriculture & Diversification	<i>Sh. Gurpreet Singh Shergill</i>
1450-1500	Farmer-III: Specialty crops: baby corn, sweet corn, mushroom etc.	<i>Sh Arun/Sh Dinesh</i> <i>Sh. Vikash Benal</i>
1500-1510	Farmer-IV: Honey Bee keeping	<i>Sh. Gurcharan Singh Mann</i>
1510-1540	Open discussion and key recommendations	
1540-1600	Tea Break	
1600-1715	Technical session-IV: Young Farmers Experiences on Livelihood Opportunities for Farm Youth in Livestock Farming- Moving Beyond Livestock Production Co-Chairs: <i>Dr KML Pathak, DDG (Animal Sciences), ICAR and</i> <i>Dr GS Jakhar, DG, Animal Husbandry, Govt of Haryana</i> Convener: <i>Dr Inderjit Singh, Director, CIRB</i>	
1600-1615	Farmer-I: New opportunities in animal breeding	<i>Sh. Surjit Singh Malik</i>
1615-1630	Farmer-II: Opportunities in dairying	<i>Sh. Yuvraj Khurana</i>
1630-1645	Farmer-III: Innovations in inland fish production	<i>Shri Sultan Singh</i>
1645-1715	Open discussion and key recommendations	<i>All</i>
1715-1830	Plenary session: Key Recommendations of Different Sessions Chair: <i>Dr RS Paroda, Chairman, HKA</i> Co-Chair: <i>Dr KD Kokate, DDG (Agri Extention), ICAR</i> Convener: <i>Dr Indu Sharma, Director, DWR</i>	
1715-1725	Session-I	<i>Dr ML Jat</i>
1725-1735	Session-II	<i>Dr SS Siwach</i>
1735-1745	Session-III	<i>Dr DK Sharma</i>
1745-1800	Session-IV	<i>Dr Inderjit Singh</i>
1800-1810	Remarks of Co-chair	<i>Dr KD Kokate</i>
1810-1825	Remarks of Chair	<i>Dr RS Paroda, Chairman HKA</i>
1825-1830	Vote of thanks	<i>Dr RS Dalal,</i> Member Secretary, Haryana Kisan Ayog

