



# REPORT ON

## National Agriculture Conclave

organised by

**G H Raisoni University**

In Collaboration with

**Indian Council of Agriculture Research  
(ICAR)**

**Theme: Agricultural Education**

on  
**6th & 7th April, 2018**

[www.nationalagricultureconclave.com](http://www.nationalagricultureconclave.com)

## Programme

**Day – 1, 6 April 2018**

<b>Time</b>	<b>Particular</b>
09 : 15 - 10:00 AM	Registration and Arrival of Guests
<b>Inaugural Session</b>	
10:00 - 10:05 AM	Lighting of Lamp and Invocation
10:05 - 10:08 AM	Floral Welcome
10:08 - 10:15 AM	Welcome and Introduction By Hon'ble Vice Chancellor, <b>GHRU Dr. Rajan Welukar</b>
10:15 - 10:20 AM	Address by <b>Dr. Akhilesh Pandey</b> , Chairman MP Private University Regulatory Commission, Bhopal
10:20 - 10:30 AM	Address by <b>Dr. Narendra Singh Rathore</b> , Deputy Director General (Agril Education), ICAR, New Delhi
10:30 - 10:50 AM	Address by Chief Guest: <b>Dr. Prof S. Parasuraman</b> , Former Director – TISS, Mumbai
10:50 – 11.00 AM	Presidential Address by Hon'ble Chancellor <b>Shri Sunil Raisoni</b>
11.00 - 11:05 AM	Vote of Thanks by <b>Dr. Mrinalini Naik</b>
11:05 - 11:08 AM	National Anthem
11:08 - 11:30 AM	Networking Tea Break
11:30 AM - 12:00 Noon	<b>Theme Lecture: Agri Education in India</b> Dr. N. S. Rathore, DDG (Agril. Edn.), ICAR, New Delhi.

<b>Technical Session - I</b>	
12:00 Noon - 01:00 PM	<p><b>Status And Scope of Human Capital Requirement in Agricultural and Allied Sectors</b></p> <p><b>Convener: Dr. M. B. Chetti</b>, ADG (HRD), ICAR  <b>Chair : Dr. S. S. Chahal</b>, Former VC, MPUAT, Udaipur  <b>Co Chair: Dr. A. S. Nanda</b>, VC, GADVASU, Ludhiana</p> <p><b>Rapporteurs : Dr. S. S. Kanwar</b>, Emeritus Professor  <b>Dr. P. C. Reddy</b>, Emeritus Professor</p> <p><b>Session Speakers</b></p> <ol style="list-style-type: none"> <li>1. Policy innovation and Institutional Reforms in building Vibrant human resource capital  <b>Dr. B. Venkateswarulu</b>, VC, VRNMAU, Parbhani</li> <li>2. Major global initiatives in developing human resources in agriculture  <b>Dr. G. Venkateshwarlu</b>, ADG (EQR), ICAR, New Delhi</li> </ol>
01:00 - 02:00 PM	Networking Lunch
<b>Session - II</b>	
02:00 - 03:00 PM	<p><b>Panel Discussion on Reforms in Knowledge and skill requirement of agricultural graduates</b></p> <p><b>Convener: Dr. K. K. Saharia</b>, AAU, Jorhat, Aasam  <b>Chair: Dr. H. S. Gupta</b>, Former Director, IARI, New Delhi  <b>Co-Chair: Dr. K. P. Singh</b>, VC, CCSHAU, Hisar</p> <p><b>Rapporteurs : Dr. N. R. Gangadharappa</b>, Emeritus Professor  <b>Dr. NeelamKhetarpal</b>, Emeritus Professor</p> <p><b>Session Speakers</b></p> <ol style="list-style-type: none"> <li>1. Innovations for enhancing employability and entrepreneurship development in agriculture  <b>Dr. B. G. Mukhopadhyaya</b>, Former CGM, NABARD, Mumbai</li> <li>2. <b>Dr. Sharad Nimbalkar</b>  Former Vice Chancellor – Dr. PDKV, Akola</li> <li>3. Presentation on Re-skilling Digital India by <b>Mr. LohitPenubaku</b>, (Asst. Manager, e-Yantra).  <b>Mr. AjitHarpude</b> (In-charge, Urban Agriculture project)</li> </ol>
03:00 - 03:30 PM	Tea Break
<b>Technical Session - III</b>	
03:30 - 05:00 PM	<p><b>Enhancing Agricultural Productivity, Competitiveness and Rural growth</b></p> <p><b>Convener: Dr. AshutoshMurkute</b>, PS, IICR, Nagpur</p>

	<p><b>Chair: Dr. S. A. Patil</b>, Former Director, IARI, New Delhi.  <b>Co-Chair: Dr. A. Paturkar</b>, VC, MAFSU, Nagpur</p> <p><b>Rapporteurs : Dr. S. Lingaraju</b>, Emeritus Professor  <b>Dr. M. K. Rana</b>, Emeritus Professor</p> <p><b>Session Speakers</b></p> <ol style="list-style-type: none"> <li>1. Possibilities for doubling farmer's income through Animal Husbandry  <b>Dr. A. S. Nanda</b>, VC, GADVASU, Ludhiana</li> <li>2. Linking Farmers to Markets – Need and Challenges  <b>Dr. P. G. Chengappa</b>, Former VC, UAS, Bangalore.</li> <li>3. Strategies we need to follow, Ensuring food and nutrition Security in India.  <b>Dr. H. S. Gupta</b>, Former Director, IARI, New Delhi</li> <li>4. Enhancement of Agriculture Productivity &amp; Profitability through Watershed, Wadis and FPO's  <b>Dr. R. M. Kummur</b>, CGM, NABARD (Retd), Mumbai</li> </ol>
06:30 - 08:30 PM	Musical Evening followed by Networking Dinner

## Day 2, 7 April 2018

Time	Particular
09:30 AM	Visit to University Campus, Saikheda, Madhya Pradesh
11:00 AM	Arrival of Dignitaries
11:00 - 11:30 AM	Welcome Tea.
11:30 AM - 12:30 PM	Visit to G H Rasoni University Facilities & Experimental Field
12:30 - 01:30 PM	Student Interaction & Concluding Session
01:30 - 02:30 PM	Lunch
02:45 PM	Departure to Nagpur

G H Raison University, Saikheda (M.P.) organized National Agriculture Conclave, in collaboration with Indian Council of Agriculture Research (ICAR) on 6th & 7th April 2018, on the theme "Agricultural Education" at Hotel Radisson Blu, Nagpur. The event aimed at creating connections and coordination between market-based, community-building action toward restoration and reconciliation in a world of hunger and poverty. The confluence of vivid professionals will bring together a diverse views and valuable inputs that will encourage the passion for agriculture. The conclave started with welcome and introductory remarks from Dr. Rajan Welukar, Hon'ble Vice Chancellor, GHRU. Dr. Akhilesh Pandey, Chairman, MP Private University Regulatory Commission, Bhopal; addressed the gathering about agro-processing industries and its influence on farmer's wholesome development.. Dr. Narendra Singh Rathore, Deputy Director General (Agricultural Education) Division of Education, ICAR, New Delhi gave highlights on status of Agricultural education system in India emphasized on four Ts Tradition, Teaching, Testing and Training. Dr. Prof S. Parasuraman, Former Director & TISS, Mumbai, chief guest, shared his professional experiences and discussed about how to get out of niche and outperform to benefit the masses. The presidential address was given by the Hon'ble Chancellor, GHRU, Mr. Sunil Raison followed by vote of thanks by Dr. Mrunal Naik. After networking lunch straightway technical sessions were lined up as follows:

**Technical Session I** was chaired by Dr. S. S. Chahal, Former VC, MPUAT, Udaipur. The theme for the session was *Status and scope of Human Capital Requirement in Agricultural and allied sectors*. Dr. B. Venkateshwarulu, VC, VRNMAU, Parbhani enlighten on the topic *Policy innovation and institutional reforms in building vibrant human resource capital* He highlighted perception about Agriculture subject in society in order of choice by the students. There is a need to bridge the gap by changing the profile of the profession. He emphasized introduction of Agriculture subjects in school curriculum. He said Agriculture education is changing like other streams of education – cellular agriculture (artificially producing food), vertical farming (growing food in containers) and secondary agriculture which is introduced. 30% liberase in changing the curriculum as recommended under 5th Dean's Committee is not being seriously addressed by most of the SAU's. Dr. G. Venkateshwarlu, ADG(EQU) ICAR, New Delhi; spoke on the topic *Major global initiatives in developing human resources in Agriculture*. He talked about, climate smart village/Agriculture farm. He emphasized that how the process of accreditation of private institutions also has been introduced to inculcate the sense of competitive news. He also informed about the initiation of ranking of institutions by ICAR. Also, highlighted about different fellowship programmes which can aid students for higher education. Finally chairman & co-chairman given their views about the two speakers.

**Technical Session II** was on *Reforms in knowledge and skill requirement of agricultural Graduate*. This session was chaired by Dr. H.S. Gupta, Co-chaired by Dr. D.L. Maheshwar and moderated by convener Dr. K.K. Saharia. Mr. Lohit Asst. Manager, *e-Yantra* spoke on re-skilling digital India with robotics among the graduate students. He also explained of *e-Yantra* in equipping the undergraduate students with respect is the skill in using robotics in carrying out different agricultural operations including water management. The second speaker Dr. B. G. Mukhopadhyaya, Former CGB, NABARD, spoke on *Knowledge and innovation in agriculture entrepreneurship*. His speech centered on identifying innovations among the students themselves and using it for sensitizing the academic programmes in the Universities to promote entrepreneurship. Dr. Sharad Nimbalkar, former Vice-Chancellor, PDKV, Akola shared his personal experiences as to how to build up knowledge and skill in agriculture. The entire focus was on initializing scientific society in agriculture facilitate agricultures education for the future.

At the end, Dr. S.L. Gupta, Chairman also gave his concluding remarks on how to equip the students with required knowledge and skills to become more competitive.

**Technical Session III** entitled *Enhancing agricultural productivity, competitiveness and rural growth* comprised four lead lectures. Dr. A.S. Nanda's, the Vice Chancellor of GADVASU, Ludhiana, Punjab talk on Possibilities for Doubling Farmers' Income through Animal Husbandry stressed upon embarking a National Mission on Buffalo and suggested to export the best animal germplasm, and further he extolled to bring middlemen into mainstream to provide pure milk to the people of India. Dr. P. G. Chengappa, the former Vice Chancellor of UAS, Bengaluru, in his talk entitled *Linking Farmers to Markets: Need and Challenges* lamented the fact that the ICT application in agricultural marketing is dismally low, and presently, the *Regulated Markets System* is not working well. He suggested to create *Super Markets* and cautioned that the intermediaries cannot be removed from the process. The lecture of Dr. H. S. Gupta, the former Director of Indian Agricultural Research Institute, New Delhi, dwelt on the *Strategies We Need to Follow Ensuring Food and Nutrition Security in India*. While ascribing the strategies for increasing food including fruits and vegetables production in the country to (i) a free flow of materials and information, (ii) high yielding varieties, (iii) continued Research and Development Cooperation with United States universities culminating in efficient manpower generation and (iv) joint efforts of scientists, farmers, policy makers, etc. He also outlined the challenges in Indian agriculture. In the session, the last lecture delivered by Dr. R.M. Kummur, the former Chief General Manager of NABARD, Mumbai, was *Enhancement of Agricultural Productivity and Profitability through Watershed, Wadisand FPOs*. By growing vegetables vertically, the productivity and profitability can be increased several times. The government should provide funds for the development of watershed facilities in areas of rain fed in the country. NABARD has supported number of farmers in different areas. Finally chairman & co-chairman gave their views about the speakers. Session III was concluded followed by networking dinner.

## **DAY 2**

All the dignitaries were travelled from Nagpur to Saikheda for visit to GH Rasoni University facility and experimental field also, interacted with farmers and students. During visit to GHRU facilities dignitaries have visited apiculture, poultry, dairy units, goat farm, crop museum, agronomical and horticultural farms. After a diminutive inspection by the dignitaries; they appreciated the quantum of work done within a shorter days span since, the inception of the university. They also, quoted the areas of improvement like, vocational training sessions for farmers/student's, social activities like seed distribution, tree plantation through *shramadan* by students and faculties, development of organic vegetable and fruit cultivation which can be utilized for hostel residents, integrated farming system, mushroom cultivation, tissue culture laboratory, etc. All agreed on one point that this university should be established as an Independent Agricultural University. With promise to get back in the next edition of NAC-2019 conclave concluded.

## TECHNICAL SESSION REPORT 1

Time: 12.00 Noon – 1.00 pm

**“Status and scope of Human Capital Requirement in Agricultural and allied sectors”**

**Convener:** Dr. M.B. Chetti, ADG (HRD), ICAR

**Chairman:** Dr. S. S. Chahal, Former VC, MPUAT, Udaipur

**Co-Chairman:** Dr. A.S. Nanda, VC, GADVASU, Ludhiana

**Rapporteurs:** 1. Dr. S. S. Kanwar, Emeritus professors

2. Dr. P.C. Reddy, Emeritus Professor

Dr. M.B. Chetti, ADG (HRD), ICAR & convener of this session introduced the chairman Dr. S.S. Chahal, Co-Chairman – Dr. A.S. Nanda and rapporteurs Dr. S.S. Kanwar and Dr. P.C. Reddy. Session speaker: Dr. B. Venkateshwarulu, VC, VRNMAU, Parbhani and Dr. G. Venkateshwarulu, ADG (EQR), ICAR, New Delhi

**TOPIC 1: Policy innovation and institutional reforms in building vibrant human resource capital.**

Speaker: Dr. B. Venkateshwarulu, VC, VRNMAU, Parbhani.

He spoke about 4 important capitals

1. Human Capital
2. Physical capital
3. Financial Capital
4. Social Capital

Out of these, human capital is most important. He emphasized innovativeness of leader by citing three examples.

- Dr. M.S. Swaminathan – on Agriculture
- Dr. Kurian on milk production
- Dr. Sridhar on infrastructure (metro etc)

He highlighted perception about Agriculture subject in society in order of choice by the students. There is a need to bridge the gap by changing the profile of the profession. He emphasized introduction of Agriculture subjects in school curriculum. He said Agriculture education is changing like other streams of education – cellular agriculture (artificially producing food), vertical farming (growing food in containers) and secondary agriculture which is introduced. 30% liberase in changing the curriculum as recommended under 5<sup>th</sup> Dean’s Committee is not being seriously addressed by most of the SAU’s.

Agriculture being a state subject – there is a strong need of involvement of state Governments in planning & reform of Agriculture rather than disowning it. He highlighted the performance of Agriculture graduates passed in competitive (National) Exams like National Services, nearly 50% of the students are from Agriculture Universities, in the state of Maharashtra.

## **TOPIC – II Major global initiatives in developing human resources in Agriculture**

**Speaker:** Dr. G. Venkateshwarlu, ADG(EQU) ICAR, New Delhi.

Addressed 3 important aspect

- 1) Changing face of Agriculture
  - 2) Academic landscapes
  - 3) Institutional frame work
- Changing face of Agriculture: He emphasized that this is a very rare occasion where a private sector is organizing conclave for the sake of Agriculture education. Under the 1st aspects He focused on protected cultivation, surging in horticulture production, shifting from primary to secondary agriculture.
  - He emphasised the potential of see food exports from India to more than 100 countries which is to the tune more than 40 thousand crores revenue.
  - This is the area where education with respect to processing and other aspects of secondary agriculture are required to be focussed.
  - He talked about, climate smart village/Agriculture farm.

### **2. Academic Landscape :**

- More emphasis of skilled development, where agriculture graduates can be “Job providers than Job seekers”
- He highlighted about the revised curriculum in the form of 5<sup>th</sup> Dean’s Committee & launching of READY programme by honourable Prime Minister.
- He emphasized that how the process of accreditation of private institutions also has been introduced to inculcate the sense of competitive news. He also informed about the initiation of ranking of institutions by ICAR.
- He also emphasized on production of new programme like M.Sc. in Organic Farming and M.V. Sc. In Veterinary Ayurveda to meet the human resource requirements keeping in view of the present demand.

### **3. Institutional frame work**

- Agriculture education started on land grant pattern” in India. About 150 years back the major emphasis was teaching of practical Agriculture.

- He Introduced various fellowship/scholarship started by ICAR for Indian and foreign students. He also emphasized on establishing International linkages among educational institutions.
- He highlighted the fellowship programme of ICAR Netaji Subhash chandra Bose ICAR International fellowships, where Indian students going abroad will be given 2000USD & foreign students coming to India will be given Rs. 40.000/- P.M.
- Students READY UG program launched in Agri. University- RAWE & EL attached to private industries (ABI) for 3-4 month & they are provided with finance of Rs 3000/- p.m. under RAWE programme.
- Finally chairman & co-chairman given their views about the two speakers.

**RAPORTEURS:**

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## TECHNICAL SESSION REPORT II

The second session was on Reforms in knowledge and skill requirement of agricultural Graduate. This session was chaired by Dr. H.S. Gupta, Co-chaired by Dr. D.L. Maheshwar and moderated by convener Dr. K.K. Saharia.

The session was started with the introductory remark by Dr. M.B. Chetti, ADG. (Edu.) Further, he also introduced the Chair, Co-Chair, Convener and rapporteurs. Then, the session was taken over by chairman, who invited in speakers to speak on the given topic.

Mr. Lohit Asst. Manager, e-Yantra spoke on reskilling digital India with robotics among the graduate students as robotics innovations have become very critical and important in the coming era in agriculture's development process. He also explained of e-Yantra in equipping the undergraduate students with respect to the skill in using robotics in carrying out different agricultural operations including water management. He was of the view that giving freedom among the students would facilitate the development of innovations with necessary skills which are relevant to the present agriculture situation. He also narrated this with video clippings of the developing fruit sorting robot by engineering students at IIT, Mumbai.

The second speaker Dr. B. G. Mukhopadhyaya, Former CGB, NABARD, spoke on knowledge and innovation in agriculture entrepreneurship. His speech centered on identifying innovations among the students themselves and using it for sensitizing the academic programmes in the Universities to promote entrepreneurship. Further he emphasized the need of divergent ideas and creative thinking to convert local problems into solutions to make students more competitive, effective and efficient and to develop leadership among the students. He also emphasized to give more focus on social communication and technical skills among the students to become self entrepreneur.

Dr. Sharad Nimbalkar, former Vice-Chancellor, PDKV, Akola shared his personal experiences as to how to build up knowledge and skill in agriculture. The entire focus was on initializing scientific society in agriculture to facilitate agriculture education for the future. He also emphasized on skills regarding processing and value addition among the students to make them more competitive and professional in Agriculture sector.

The session was taken over by Dr. D. L. Maheshwar, Co-chairman summarized the viewpoints of various speakers. At the end, Dr. S.L. Gupta, Chairman also gave his concluding remarks on how to equip the students with required knowledge and skills to become more competitive to take up agriculture related future challenges and come up at par with the progress made by ISRO and IT sectors in the country further, he also mentioned that our academic programmes in agriculture must be more marketable in the society so that it is considered as a professional course as any other e.g. medicine, engineering etc.

### RAPORTEURS:

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### **REPORT OF THE TECHNICAL SESSION THIRD**

The Technical Session entitled *Enhancing agricultural productivity, competitiveness and rural growth* comprised four lead lectures as given below:

#### **LECTURE FIRST**

**Dr. A.S. Nanda's**, the Vice Chancellor of GADVASU, Ludhiana, Punjab talk on *Possibilities for Doubling Farmers' Income through Animal Husbandry* stressed upon embarking a *National Mission on Buffalo* and suggested to export the best animal germplasm, and further he extolled to bring middlemen into mainstream to provide pure milk to the people of India. He also suggested ways to streamline pork production with suitable processing plants. His lecture also dwelt on a number of issues concerning poultry. Finally, he called upon the creation of animal rendering units on a *Mission Mode Pattern* as he felt that such a step would help in creation of 15% employment to the people of this country.

Skill and knowledge can increase the agricultural productivity but animal husbandry can increase the production largely, contributing 33% of the agriculture GDP. By producing the best breed of buffalo, cow, goat, sheep and pig in the country, the farmers' income can be increased effortlessly. Through animal husbandry, the farmers can get very high income by selling milk and value-added processed milk products. The income of the farmers can also be increased ten times by exporting high quality meat to nearby countries. Poultry also needs faster processing for better market. In India, twenty million animals die every year; thus, very high foreign exchange can be earned by exporting their skin.

#### **LECTURE SECOND**

**Dr. P.G. Chengappa**, the former Vice Chancellor of UAS, Bengaluru, in his talk entitled *Linking Farmers to Markets: Need and Challenges* lamented the fact that the ICT application in agricultural marketing is dismally low, and presently, the *Regulated Markets System* is not working well. He suggested to create *Super Markets* and cautioned that the intermediaries cannot be removed from the process. He suggested ways and means to develop sustained models linking farmers to the markets in a viable manner. The farmers may get nothing without linking themselves with market, which is a big challenge before the farming community, thus, arranging market is very indispensable for the farmers. Per capita, the grain consumption is decreasing but milk and meat consumption is increasing gradually, thus, the milk and meat market should be developed separately.

Usually, they sell their products in the wholesale market. However, if the produce could be sold through cooperative societies developed at village level, they can get remunerative price for their produce and value added products. By preparing vegetable and fruit baskets, the farmers may get better price through better e marketing. The farmers should explore the market by using internet facility and the produce by such means could be sold in the markets where it is having very high price, and if the fruits and vegetables are properly sorted and graded, they can be sold at very high price through e-Markets, thus, access of market is essential for selling the produce at remunerative price. The produce can be processed and sold through cold chain

market system and the regulated market system should also be followed by the farmers for the selling of agriculture produce.

### **LECTURE THIRD**

The lecture of **Dr. H.S. Gupta**, the former Director of Indian Agricultural Research Institute, New Delhi, dwelt on the *Strategies We Need to Follow Ensuring Food and Nutrition Security in India*. While ascribing the strategies for increasing food including fruits and vegetables production in the country to (i) a free flow of materials and information, (ii) high yielding varieties, (iii) continued Research and Development Cooperation with United States universities culminating in efficient manpower generation and (iv) joint efforts of scientists, farmers, policy makers, etc. He also outlined the challenges in Indian agriculture.

India is the largest producer of milk and second largest producer of fruits and vegetables. Undoubtedly, the research scientists and the farmers of our country are doing very good job, however, there is a further need to increase the production of fruits and vegetables to reduce the consumption of food grain since the food grain consumption in the country is presently 550 g per capita per day, which should be reduced. In the country, people are not the undernourished but are malnourished due to the deficiency of protein, minerals like iron, calcium, zinc, etc. and vitamins such as A, E and D also. Soybean alone can meet out about 15% of the daily requirement. Although the production of fruits and vegetables has increased 4-5 times but their highest production is still half of our requirement, thus, there is need to develop new technology for crop improvement, crop production and crop protection. Broadly, he enlisted the new strategies and technologies should be adopted to overcome the above-mentioned problems, thus, strengthening of efforts in (i) crop improvement, (ii) crop production, (iii) crop protection and (iv) transfer of technology may further keep the farmers in good stead. Finally, he called upon for an *Evergreen Revolution* to feed the growing populace of our country, which is expected to cross 1.6 billion in 2050.

### **LECTURE FOURTH**

In the session, the last lecture delivered by **Dr. R.M. Kummur**, the former Chief General Manager of NABARD, Mumbai, was *Enhancement of Agricultural Productivity and Profitability through Watershed, Wadis and FPOs*. By growing vegetables vertically, the productivity and profitability can be increased several times. The government should provide funds for the development of watershed facilities in areas of rain fed in the country. NABARD has supported number of farmers in different areas. The farmers are not getting good price of their produce, thus, the government of India should develop the food processing units at village level and should also provide insurance facilities to the farmers so that the surplus food may be converted into value added durable products and by adopting this technology, the wastage of food due to glut of a particular fruit and vegetable in peak season may be avoided in the country and the farmers may also get the remunerative price of their produce and products in the markets. Simultaneously, the nutrition security may be ensured in country and the problem of malnutrition may be solved. This can be made possible by adopting Watershed, WADIS and FPOs technologies by the farmers in the country.

# **Enhancing Agricultural Productivity and Profitability through watersheds, wadis and FPOs**

Dr. R. M. Kummur, Ex-CGM, NABARD, Bangalore\*

The biggest issues facing Indian Agriculture today are low productivity and low profitability to the farmers. The agriculture productivity in the country is 30-50% lower than that of developed nations. Low use of appropriate farm technologies and techniques, products (inputs) and services (credit, marketing etc) by the farmers are leading reasons for low agriculture productivity. Even if the production is good, the markets are not perfect and do not ensure remunerative prices to the farmers, thus disincentivising their continuance in agriculture. Adoption of watershed and wadi development in rainfed areas and establishment of Farmer Producers Organizations (FPOs) will go a long way in increasing agricultural productivity and profitability to the farmers.

## **I. Watersheds and Agril. Productivity**

Agril. Productivity is low in rainfed areas (RAs). Soil and water conservation measures may be taken up on watershed basis to increase productivity.

This helps in increasing soil moisture availability for longer period of time, provides opportunity to take second crop and enhances productivity of crops currently being grown.

Speech Delivered in the National Agriculture Conclave held on 6<sup>th</sup> & 7<sup>th</sup> April, 2018 at Nagpur

Many times we stop at implementing watershed projects & neglect the aspect of utilization of enhanced soil-moisture regime in the developed watersheds.

There should be concerted efforts to use the conserved soil moisture by changing crops, cropping patterns, use of straw mulches, etc., and thus increase the productivity of crops grown in watersheds. Further, the maintenance of water and soil conservation structures in watersheds is neglected almost nullifying the impact of watersheds. Village Watershed Committees (VWCs) should use the maintenance fund created during project period, to maintain the structures and thus enhance the impact of the project on sustainable basis.

Atleast one third of the watershed area may be brought under tree crops, thus preventing the crop loss/ yield during drought / low rainfall years. When annual crops may fail, tree crops protect the incomes of the farmers in drought years.

The excess runoff water that can not be conserved in-situ can be harvested in check dams and farm ponds. This stored water can be used to give protected irrigation to field crops and thus increase productivity of crops. It can also be used to raise tree crops and horticulture crops (Sitaphal, Ramphal, Ber etc.), by giving life saving irrigation in summer.

Green grass grown on farm bunds can be used to feed the cattle and thereby increase dairy animal yields. Studies suggest that the number of cross bred cows/ buffaloes and the milk yield increased in the watershed areas/ villages.

State Govts. should put equal emphasis on watershed development as they do for irrigation and provide in their state budgets for implementation of watershed projects, which will help in increasing agril productivity in rainfed areas.

It is common scene now a days in villages, where farmers are going for multiple borewells and most of the borewells are failing. Therefore, unless the rainwater is conserved where it falls, through watersheds, even sustainable development of minor irrigation through wells/ borewells is not possible. Those days are not far away, when dry lands may become desert and go out of cultivation.

The ICAR institutes and State Agril Universities may conduct research on various aspects of watershed development like extent of soil and water conservation, , increase in soil moisture holding and crop planning, cropping patterns and crop diversification, crop yields & the economics of the same, the behavioural aspects of the watershed communities and the organization development of village watershed committees, the extension guidance available from Govt. Depts, credit availability & its inadequacy to farmers in the developed watersheds, etc. This knowledge will not only validate the work done by various watershed implementing agencies, but will also help in propagation of watershed development on large scale keeping in view the field level problems and solutions in view.

## **II. Wadis and Productivity of crops / Hort. Crops**

Small orchards (Wadis) are developed to increase the agril productivity / incomes of farmers in rainfed areas. The concept has been propagated by NABARD for development of tribals in many states of the country. The same can also be adopted by other farmers to develop their farms and to increase their yields.

The farmer, in a wadi, continues to grow the annual crop he was growing earlier, in addition to planting a locally suitable horticulture crop and covers it from all around, with forest trees planting on the bunds. Mango, sapota, cashew, guava, naspathi are the usual hort crops grown. Trenching and bunding in wadi helps in water conservation and provides soil moisture for the horticulture crop for the year long. The forest plantation around the orchard protects it from grazing animals and high speed winds, thus protecting it against fruit fall. The intercropping with annual crops in the horticulture crop continues as long as the plant canopy does not close and abstract intercropping. Farmers start getting fruit crop yields from fourth year onwards, thus enhancing their land productivity and stabilizing their agril income.

Wherever, water sources are available, the farmers have taken to irrigated intercropping of vegetables in the wadis and increased their productivity tremendously.

Wadi projects can be implemented under convergence mode by the State Govts using the funds of MGNREGA (earth work, pitting, farm ponds etc.), Hort Dept (Planting material of fruit crops, fencing, micro-irrigation, pumpsets, pack houses, seeds for vegetable intercrops, etc) and Forest Dept (Forest spp seedlings, fodder trees etc), in collaboration with banks / NABARD. This may be taught in Agri/ Hort/ Forest Colleges of the country.

Farmers can also establish wadis by borrowing loans from banks. The unit cost for establishment of one acre of wadi is Rs. 35,989/- in Chattisgarh.

One project of wadi for establishing 500 wadis of one acre each is under implementation in Raigarh district of Chattisgarh. An NGO (Janmitram) is implementing the project with convergence of assistance from District Administration (MGNREGA) and NABARD, Raipur.

One proposal for establishment of wadis in 25000 acres on convergence mode with assistance from NABARD and State Govt Depts is before the Govt of Chattisgarh for their consideration and approval (50 wadi projects).

### **III. FPOs (Farmer Producer Organizations), market access and profitability**

NABARD has assisted establishment of 2200 Farmer Producer Organizations (FPOs) under GOI fund support starting from the year 2014-15. State Govt Depts of Horticulture, Agriculture, Rural Development have also assisted establishment of FPOs with RKVY and SFAC assistance.

FPOs are organizations of farmer producers, who have come forward to work together to increase their crop yields, reduce cost of cultivation and find market access and better price for their produce. They collect equity / share capital from each member farmer and leverage this corpus to start their business/ marketing activities, access grant, access bank credit, etc. They usually get registered under Companies Act, State Cooperative Societies Act/s, Societies Act.

As farmers are not well versed with the intricacies of agril commodities/ agri-inputs business, it is better they appoint CEOs for running the day to day affairs of the FPOs and restricting their own role to the Board/ General Body function to give direction to the CEO and the management of the FPO.

The major job of the FPOs is to find market and better price for their produce. They aggregate the farmers produce and sell for better price in the near / distant market. FPOs have marketed perishable like fruits and vegetables this way. Wherever possible, FPOs get involved in processing of the agri produce and value addition. Incase of nonperishables like paddy,

scented rice, milltets, pulses etc., they have processed, packed and sold the products, realizing higher prices and profit for the farmers & FPOs. This modus operandi helps farmers to access better markets and price discovery, on their own, instead of depending on the Govts to provide this service to them.

FPOs are also obtaining license for agril input dealership and supplying seeds, fertilizers and pesticides through their outlets. In this process, FPOs get the advantage of buying in wholesale price and selling at retail price. The hepty commission obtained especially under pesticides is passed on to famers, which helps in reducing the cost of cultivation at famers level.

For a country of India's size, about one lakh FPOs are required to serve the farmers. The present FPOs may work as pilots to show the feasibility and viability of FPOs as "Farmers Own" marketing mechanism towards making agriculture an Agri business". ICAR / Universities may study them.

Therefore, State Govts/ District Administrations should come in support of establishment of FPOs and extend financial / policy support to these business Organizations of farmers. The District Collectors/ Deputy Commissioners of Jashpur, Jagdalpur, Bilaspur in Chattisgarh have supported FPOs by giving them land, infrastructure, financial assistance for procuring equipment, marketing infrastructure, etc. Extension of similar support by all State Govts may go a longway in developing the "FPO ecosystem" in the country.

Further, FPOs can act as Aggregators of agril commodities and take part in "Futures" and "Options" trading on e-platforms of commodity exchanges like NCDEX, MCX etc. This will help in price discovery and assurance of price in advance. The commodities meant for delivery on commodity exchanges can also be stored in accredited warehouses of the exchanges, which will also help in availing credit against warehouse receipts. Farmers can wait for better prices/ price discovery under this mechanism instead of selling their produce in spot markets at distress price.

#### **IV. Agril Produce Markets and Competitiveness**

As per Dr. Ramesh Chand, member Niti Ayog New Delhi, State Govts are not reforming the APMC Act and therefore, market regulation is the biggest obstacle for price discovery and obtaining remunerative price by the farmers. Because of this, organized private sector players are not participating in agriculture marketing. The Unorganized Traders dominante the scene and the farmers are exploited interms of weightage, wastage, gunny bag weight, delayed payment and staggered payment, offer of lower price, etc. as a result of which development and evolution of markets and competition have become casualties. Since markets are not offering remunerative prices to farmers, they are turning more and more towards Govt for getting Minimum Support Price (MSP). While, no doubt the market reforms need to be introduced to get remunerative

price to the farmers, in the meanwhile, procurement centres may be established every where (PACS, FPOs, SHG Feds etc) to procure the entire farm produce the farmers bring to the market. Wherever, needed govt may involve private sector players for procurement at MSP.

Further, a central law to prohibit purchase of agri commodities below MSP by private traders/ govt. agencies may be brought in (on the lines of the minimum wages act) and strictly enforced, which ensures farmers get atleast the MSP.

In addition, the farmers should get MSP, net of all charges / fees / commission and those charges should be borne by the central / state govts in agreed proportion.

The State Govts should also strengthen their Agriculture & Agril Marketing Depts, to ensure better price for the farmers produce, by providing market intelligence/ advisory on future prices of agril produce, to implement market reforms, to repeal / amend abstractive Acts like Essential Commodities Act, which prevents the market absorption of higher production and stocking by traders, warehouses, etc.

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