

## CONCLUSIONS AND RECOMMENDATIONS

The National Conference on Agriculture for Khariff Campaign 2007-08 not only deliberated on the strategy for the coming khariff season but also on developing a national strategy to achieve the targeted 4% agricultural growth by tapping regional and local potential; focused attention on development of rainfed / dryland areas; extension of area and productivity of major food crops of the States to ensure food security including maximizing productivity of pulses and oilseeds in a mission mode; development of quality seeds, particularly of pulses, and its timely availability in adequate quantity; horticultural development through an area based approach and strengthening of post harvest management; and revamp of the extension system to improve delivery mechanism at the grass root level.

2. Detailed presentations were made by several experts from Ministry of Agriculture on thrust areas for khariff crop (including pulses) and important intervention for food security; road map to achieve 4% growth in agriculture; implementation and monitoring of horticulture development; revamp of extension system; adequate and timely availability of fertilizers. All the State Governments also made detailed presentations on their strategy for the khariff campaign as well as on the long term issues in the agriculture and allied sectors. After detailed deliberations on the issues emerging out of the presentations made by the States and Ministry of Agriculture, the delegates of the conference:

***Resolved*** that both the Central and the State Government should jointly strategize to achieve 4% agricultural growth in the XIth Plan Period,

***Recognised*** the need for extension of area and productivity of major food crops of the States to ensure food security, including a major thrust on the pulses and oilseeds sector,

***Determined*** to provide focused attention to the development of rainfed and dryland areas, through the introduction of better watershed management techniques coupled with appropriate farming and livelihood system approaches,

***Noted*** the enormous potential of improving farm income through implementation and monitoring of horticulture development through an area based approach and strengthening of post harvest management,

***Took into account*** the essentiality of timely availability of quality seeds in adequate quantity and, therefore, the need to undertake a Nation-wide campaign on the development of quality seeds, particularly of pulses, through the Central and State agencies and improve the seed replacement rates in a determined and sustained manner,

***Emphasized*** the need for immediate revamp of the extension system to improve delivery mechanism at the grass root level with special emphasis on strengthening ATMA and the use of information technology through mechanisms such as Kisan Call Centres,

***Desired*** to work together on farmers welfare especially risk mitigation, reduction of rural distress and ensuring that farmers earn a minimum net income, through a better social security system, adequate insurance coverage and reduction of agricultural indebtedness,

***Mindful*** of the enormity of the task at hand felt the need for substantial increase in the Plan allocation for agriculture and the allied sectors both in the Central and State Plans for the XI Plan period, and

***Visualized*** a greater role for the Panchayati raj institutions in the agriculture sector, specifically in agriculture insurance, extension services, rainfed area development etc.

3. Keeping in view the broad understanding as summarized above, the conference made certain specific recommendations, which were identified as essential in order to achieve the national objectives. These recommendations were as follows:-

#### **Seed production and availability**

3.1.1 Farmers rely on and use farm saved seeds to the extent of 80 to 85%. Farm saved seeds is of poor quality and their continuous use affects their quality and consequently their yield. There is, therefore, need for promoting and encouraging higher seed replacement rate. For this purpose, the farmers have to be empowered with training, financial support and inputs like better quality seeds, parental lines (in case of hybrids) etc. to raise quality seeds in required quantity through:-

- (a) Training of farmers in seed production technologies, particularly hybrid seeds.
- (b) Supply of inputs like better quality seeds and parental lines to farmers at subsidized rates and on easy terms.
- (c) Support for creating infrastructure including irrigation facilities for seed production.
- (d) Support for acquisition of storage and seed processing facilities.

3.1.2 Public sector seed research and development system and seed production agencies have played a crucial role in the green revolution. The public sector seed R&D and

production system should be strengthened in terms of infrastructure, upgraded technologically and professionalized. This is particularly important in view of the fact that public sector will face serious challenge from the private sector in the coming years. The place and the role of public sector are unique and important because private sector will continue to be active in the area of high value and low volume seeds and may not take the desired interest in the high volume low value seeds. Further, strengthening of the State Seeds Corporations and State Seed Production systems to enable them to work as price stabilizing factor on the basis of recommendations of the Expert Group framed by Department of Agriculture & Cooperation under the Chairmanship of Dr. P.L. Gautam, Vice-Chancellor, GBPUA&T.

3.1.3 The private sector seed industry in India is growing appreciably and is acquiring an important place in our agricultural production system. The public and the private sector along with the research institutions need to be encouraged to form consortia for optimal and beneficial utilization of talent, capabilities, expertise and infrastructure. A conducive environment should be created to foster the growth of private sector seed industry and public-private partnership with a view to meeting country's quality seed requirements and facilitate India's emergence as a major seed exporter in accordance with the National Seed Policy, 2002.

3.1.4 Yield increase through better quality seeds can no longer be delayed as the area under cultivation is unlikely to increase. This calls for use of new technologies like biotechnology. Therefore, Biotechnology Research and Application to Agriculture should be promoted on a large scale.

3.1.5 Quality control of seeds should be rigorously enforced to ensure that the farmer does not suffer on account of sub-standard seeds. For this purpose, seed testing and seed certification systems should be strengthened and improved using modern technologies. One Seed Testing Laboratory in each district of the State should be established in a phased manner.

3.1.6 Seed production in the country should be increased to reach the desired level in 3 years.

3.1.7 Seed production Departments of States / State Seeds Corporations and farmers should be involved in trial and evaluation of new varieties.

### **Rain-fed area development**

3.2.1 Preparation of base data ( demographic, socio-economic and on existing natural resource) at the inception of XI Plan for rainfed agriculture.

3.2.2 Equity for resource poor families and women empowerment through their participation in Natural Resource Management (NRM ) programmes should be given adequate thrust.

3.2.3 Capacity building of various stakeholders (community, project implementation staff) should commence immediately.

3.2.4 Timely release of funds to Project Implementing Agency ( PIA ) for completion of time bound activities should be ensured.

3.2.5 Proposed activities to be taken up under NWDPRP Programme during Kharif Season in Rainfed Areas are as below:-

- i. Activities such as, bunding, bench terracing, contour bunding/ terracing, land leveling etc. need to be taken up under mechanical measures for arable lands well in advance of the monsoon.
- ii. There is also need to take up biological measures, such as, vegetative barriers, for arable lands.
- iii. For non-arable lands, the activities such as, diversion drains, contour trenching, gully plugging etc. needs to be taken up under conservation measures in the watershed areas.
- iv. In order to harvest rain water during rainy season, soil conservation measures such as, construction of check dams, vegetative cover etc. in the drainage line is required to be planned in advance.
- v. In order to create adequate soil moisture, deep ploughing at the time of first showers of monsoon is required to be encouraged to conserve soil moisture for sowing of kharif crops in dryland areas.
- vi. In order to cover the non-arable / arable area of the watershed, advance preparations are required to raise suitable species of plantation crops to take up mass plantations at the onset of monsoon.

### **Macro-management Schemes**

3.3.1 This scheme has provided a major intervention to supplement the efforts being made by the States to enhance their production and productivity, offering significant flexibility to the States to implement programmes on a regionally differentiated basis suited to their local requirements, thus creating a sense of ownership amongst the State officials of the projects implemented under this scheme. The scheme should , therefore, continue but the scope of this scheme should be further expanded.

3.3.2 The guidelines laid down for implementation of various programmes subsumed under this Scheme need to be updated, made more flexible and capable of providing better incentives. The existing rigidity in the individual sub-schemes and their compartmentalization is required to be removed so that the scheme functions as an integrated whole and not as a basket of different components put together without appropriate linkages.

3.3.3 The re-structured Scheme should focus on promotion of integrated development of major food crops essential from point of view of food security; encourage agricultural mechanization; enhance soil health and efficient quality control of inputs; and integrated

development of wastelands on watershed basis. This will ensure that the funds are not thinly spread and proved unproductive. The need to retain all the existing sub-schemes, therefore, needs to be seriously considered.

3.3.4 The subsidy structure under this Scheme has become visibly outdated and in fact, does not even compare favourably with the subsidy tariff of several other Centrally Sponsored Schemes. It is recommended that the subsidy rates under this Scheme be suitably enhanced to encourage the farming community to undertake the activities approved under the Scheme. All anomalies in the pattern of subsidy should be removed.

3.3.5 The Scheme provides much needed opportunity to the States to implement innovative activities/programmes not covered under any of its sub-schemes. However, the cap of 10 per cent of the total allocation applicable at present for such innovative schemes is restrictive in nature and discourages meaningful new interventions of the required magnitude.

3.3.6 It is not at present permissible under the Scheme to implement any activity covered under any other Central or State scheme. This restriction is a clear disincentive as the funds available under other schemes are not always sufficient enough to meet the needs of the States for implementation of that activity.

### **Extension**

3.4.1 Greater attention may be given to provide extension support to farmers in rainfed areas. Accordingly, at least proportionate resources available for extension activities may be utilized in rainfed areas.

3.4.2 Social prestige and status being accorded to farmers at present is not very high. As such, farmer awards may be instituted at Block, District and State levels.

3.4.3 Public extension functionaries would continue to perform a critical role in providing extension support, particularly to small and marginal farmers. Their training and capacity building may be given utmost importance.

3.4.4 Farmer-to-farmer learning is the most credible and effective. Farm Schools may be established in the fields of outstanding farmers and awardees of nationally recognized awards for farmers. States would take immediate action to identify progressive farmers and establish Farm Schools.

3.4.5 Agri-clinic Scheme of the DAC aims to provide extension and other support to farmers by agriculture graduates in self-employed mode. The agri-preneurs may be fully utilized in implementation of extension activities.

3.4.6 ICAR may take necessary action for setting up a system to recognize agriculture graduates as Registered Farm Practitioners and also to ensure the quality and credibility of the services provided by them.

3.4.7 Non-Government extension functionaries such as agripreneurs, NGOs, Cooperatives, PRIs, Input dealers, Corporate sector, etc. may be proactively integrated into the extension system.

3.4.8 Demonstration, training, exposure visit, various forms of research-extension-farmer interactions are effective extension activities. The focus of extension effort may be on Commodity Interest Groups (CIG) of farmers so as to provide economies of scale to small farmers. Maximum extension resources may be utilized for these activities. Increasing use of ICT may be made for providing right information to farmers at the right time. Electronic and print media may also provide necessary support.

3.4.9 ICAR may take up digitization of available information in a farmer friendly manner.

3.4.10 SAUs may develop, and announce, training calendar for training of extension functionaries belonging to both Government and Non-Government sectors. The training calendar may take into consideration training needs emerging from SREPs. States may sponsor extension functionaries for these training courses. The target should be to provide at least one round of training, on an average of about a week in each season, to all the extension functionaries available in the district.

3.4.11 Similarly, KVKs may develop, and announce, a training calendar for training of extension functionaries, progressive farmers, leaders of CIGs, etc. This training calendar may also be based on training needs emerging from SREP.

3.4.12 KVKs may also disseminate technologies through increased number of frontline demonstrations taken up on the field of members of CIGs.

3.4.13 Extension functionaries may provide season long technical backstopping to CIGs and other farmers on whose plot demonstrations are being supported.

3.4.14 States would forward the list of candidates for one year Diploma Course in Agriculture Extension Management to MANAGE expeditiously.

3.4.15 States would review the existing extension system within the state and provide their suggestions for the revitalization of the extension system, including launch of a new programme. These suggestions would be sent to DAC by 7<sup>th</sup> May, 2007.

3.4.16 Funds for implementation of various extension activities may for the present be provided under the ATMA programme. States would provide dedicated manpower at State and District levels for strengthening the ATMA programme. States would prepare and submit SEWP for 2007-08 for districts already covered under the ATMA programme latest by 15.05.2007. Soon after SEWP 2007-08 has been approved by the DAC, States would take necessary action for bringing additional districts under the coverage of the ATMA programme.

3.4.17 States would also take necessary action so that the meetings of the State Level Committees on Mass Media Scheme and Kisan Call Centres initiative are held at least once in a quarter.

### **Horticulture**

3.5.1. Production and distribution of good quality planting material is key to enhancing productivity. Therefore, efforts are required to produce the required quantity of quality planting material and make them available to the farmers. There is an urgent need to make an assessment of the requirement of planting material and put in place a mechanism for its production and supply before the ensuing planting season.

3.5.2 Immediate arrangements are required to be made to publish the particulars of certified/accredited nurseries for the information of farmers.

3.5.3 Area expansion under horticulture crops to be restricted to recommended varieties. Such area expansion should be taken up after assessment of existing potential of ICAR institutions, State Agricultural Universities and other research institutions.

3.5.4 There is a need to develop and promote modern production technologies for different crops based on agro-ecology of the region, with the active participation of ICAR institutions, State Agricultural Universities and other research institutions.

3.5.5 End to end approach with forward and backward linkages with farmer as center of focus needs to be ensured.

3.5.6 More emphasis to be laid on post harvest management through introduction of advanced technologies for on-farm storage, grading and packing of horticultural product, at production centres.

3.5.7 Farm mechanization to be actively pursued.

3.5.8 Assets created such as Plant Health Clinics, Disease Forecasting Units, Tissue/Leaf Analysis Labs., Bio-control Labs etc. out of GOI Schemes on Horticulture be made accessible/available to the farmers at reasonable costs.

3.5.9 Various components and assistance under the on-going schemes on horticulture such as Technology Mission for Integrated Development of Horticulture in the North Eastern States (TMNE) and National Horticulture Mission (NHM) to be given wide publicity for the information of the growers and other stakeholders.

### Marketing reforms

3.6.1 All States which have not amended their APMC Acts, would complete the process of amendments and create a policy environment for creating efficient marketing system. Those States, who have amended the Act but have not notified the Rules, will do so urgently to realise the benefits of reforms. To facilitate States in drafting such Rules, a Model Rule should be circulated by the Ministry of Agriculture.

3.6.2 All States eligible for Terminal Market Scheme would identify suitable locations for setting up such markets in PPP mode and would initiate the process of selection of entrepreneurs and execution of the scheme.

3.6.3 All States, which have implemented market reforms, would generate wide awareness about the opportunities available for setting up post harvest marketing infrastructure under the new Central scheme and would also propose viable projects for creating new marketing infrastructure or upgrading existing markets.

### Major crops

#### Rice

3.7.1 The System of Rice Intensification is ideally suited for adoption in **upland conditions** of rice cultivation with assured irrigation facilities. The productivity of SRI system has been found to be significantly high as compared to conventional planting of rice. The initial results of the SRI method have been very encouraging. The SRI need be promoted in upland conditions of rice growing States especially in Punjab, Haryana, Western Uttar Pradesh, Karnataka, Tamil Nadu, and Andhra Pradesh.

3.7.2 Hybrid rice is one of the most potential tools to bridge the gap between potential yield and actual yield realized at farmers' field. The States need to popularize the hybrid rice technology through availability of quality seeds and technology demonstration for augmenting the productivity of rice.

3.7.3 Promotion of early maturing rice varieties in rainfed upland and midland situations in North Eastern and Eastern States to facilitate early harvesting and exploitation of rice fallows through short duration oilseeds and pulses.

3.7.4 Integrated nutrient management with supplemental use of micronutrients in deficient areas need be promoted to enhance the productivity of rice.

#### Jowar and Bajra

3.7.5 The dual purpose varieties of sorghum need be promoted to cater to the need of fodder and grains. The extra early varieties of bajra need be promoted in arid and semi-arid regions of Rajasthan, Maharashtra, Madhya Pradesh and Karnataka.

3.7.6 The rabi sorghum may be promoted in irrigated areas of Maharashtra, Gujarat and Karnataka.

3.7.7 The rainfed/dryland technologies for moisture conservation like water harvesting, sowing on ridges in furrow irrigated raised bed system to enhance the water conservation and its utilization in rainfed areas need be promoted.

### Wheat

3.7.8 The sowing of wheat is often delayed in cotton-wheat and rice-wheat system of northern States. The states need to adopt early maturing varieties of cotton and rice to vacate the field in time for ensuring timely sowing of wheat.

3.7.9 Resource conservation technologies especially zero tillage has proved very promising in reducing the cost and facilitating timely planting of wheat especially in rice-wheat system in north-western and north-eastern plains. This technology needs to be promoted to encourage early/timely sowing of the crop and reduce the cost of production.

3.7.10 Enhancing seed replacement rate from about 20% at present to 30% with greater emphasis on high temperature tolerant varieties so as to minimize the loss in yield due to rise in temperature during flowering/grain formation stages.

3.7.11 Balanced use of fertilizers including micronutrients should be promoted to achieve higher productivity.

### Pulses

3.7.12 Concerted efforts are required for area expansion under *kharif* pulses (8.0 m ha) and *rabi* pulses (1.2 m ha) through intercropping with cereals, cotton, sugarcane and oilseeds and targeting rice fallows of southern, eastern and central States.

3.7.13 Emphasis should be given to increase the area under short duration pigeonpea in Maharashtra, Gujarat, Madhya Pradesh, Karnataka, Andhra Pradesh and Tamil Nadu.

3.7.14 Seed replacement rate need to be enhanced to 25-30% which is at present very low.

3.7.15 A national campaign need to be launched to promote seed treatment with fungicides and *Rhizobium* culture to enhance the productivity by 10 to 15%.

3.7.16 Ridge planting of pulses should be promoted in eastern States and black soils of southern States to avoid the loss due to water logging.

3.7.17 Application of phosphatic fertilizers and need based micronutrients like boron, zinc and sulphur need be promoted.

3.7.18 Integrated pest management involving bio-pesticides/pesticides and cultural practices should be promoted to minimize the losses from pod borer.

3.7.19 Promotion of sprinkler irrigation system to provide one or two life saving irrigation.

#### Oilseeds

3.7.20 Enhance seed replacement rate to cover more area under improved varieties

3.7.21 Promotion of use of phosphatic fertilizers along with sulphur in sulphur deficient areas to enhance the productivity

3.7.22 Encourage early/timely sowing using seed-cum-fertilizer drill for better growth and yield.

3.7.23 Intercropping of pigeonpea with soybean need be encouraged to enhance the return per unit cropped area.

3.7.24 The seed rate in soybean need be adjusted according to quality of seeds and its germination percentage.

3.7.25 Provide supplementary irrigation for realizing higher productivity of oilseeds.

#### Cotton

3.7.26 Pests particularly the American Bollworm are the main constraints in increasing cotton yield. The States may invariably give more thrust to IPM and popularize Bt-hybrids. 64 Bt-hybrids have been released since 2002 for different cotton growing States, which are suitable both for irrigated and rainfed conditions. The Bt-cotton area which was about 0.29 lakh ha in 2002-03, has increased to almost 34 Lakh ha in 2006-07 which is 37% of total cotton area. (The total cotton area was about 91.6 lakh ha in the country during 2006-07). This clearly indicates its' popularity amongst farmers. The States, however, may keep close watch that spurious Bt-cotton seeds are not supplied.

3.7.27 The efforts are needed for efficient use of water through sprinkler and drip as water is a scarce commodity in most of the cotton growing States. This way the saved water could be used to irrigate more area for increasing productivity as presently 65% cotton area in the country is rainfed.

3.7.28 Presently the country is importing Extra Long Staple (ELS) cotton. Therefore, States like Tamil Nadu, Karnataka, Andhra Pradesh, Maharashtra etc may make concerted efforts under Mini Mission-II of Technology Mission for increasing production of such cotton, which fetches better price than other types of cotton.

## Sugarcane

3.7.29 The major constraint in sugarcane cultivation in the sub tropical region is late planting of sugarcane after harvesting of wheat causing reduction in yields and therefore timely planting needs to be ensured.

3.7.30 Since sugarcane is consuming too much water, water saving devices like drip need to be popularized for saving water particularly in states having shortage of water.

3.7.31 Ring pit method of sugarcane planting increases yield significantly compared to conventional methods. A ring pit of 90 CM diameter with 45 CM depth is dug by Ring-pit digger machine attached to tractor and sugarcane sets are planted in the pit. Such planting reduces emergence of unproductive shoots and therefore inputs are effectively used by main shoots of plant giving more yields. The States may popularize Ring Pit Digger machine under Macro management scheme, where assistance @ 25 % of cost is available for supply of machines to farmers.

## Jute and Mesta

3.7.32 Jute is grown in the Eastern and NE States but due to higher humidity, seeds produced in these States have poor seed viability and hence seeds are mostly imported from Maharashtra and Andhra Pradesh. Thus, major thrust be given to procure and distribute jute seeds timely to farmers. And also increase more seeds to farmers.

3.7.33 Jute fiber produced is poor quality due to lack of flowing water compared to jute fibers produced in Bangla Desh. Technology for retting of fiber with the limited available water has been developed by ICAR for increasing fiber quality. States may demonstrate and popularize improved method of jute retting under newly launched Mini Mission-II of Jute Technology Mission.

## **Fertilizer availability**

3.8.1 It was noted that assessed requirement of Urea, DAP and MOP as worked out in consultation with the State Governments, DOF and Industry is 132.65 lakh MTs of Urea, 40.08 lakh MTs of DAP and 16.5 lakh MTs of MOP. This does not include pipeline requirement. The Government of India will ensure that the availability of the fertilisers to the farmers including the pipeline requirement are fully met. Also the prices of the raw material and finished product for the purpose of subsidy/concession be decided by the GOI in time to ensure availability. However, the State Governments should also take the following steps :-

- a) The availability of the fertilizer within the State should be ensured through equitable distribution.
- ii) The quality control mechanism under FCO should be fully operationalized so that the farmers get right quality of fertilizers.

- iii) The tie up of the fertilisers be fully worked out with DOF and Industry under intimation to DAC.
- ii) Gap, if any, in the availability should be brought to the notice of DOF and DAC.

3.8.2 Regarding National Project on Organic Farming, it was noted that the implementation of the programme needs to be stepped up and State Governments will take all possible steps in this regard with assistance from the National Centre of Organic Farming and through its six Regional Centres so that the formally certified areas increases to give full benefits to the farmers.

### **Agriculture Research**

3.9.1 Agriculture research should focus on the specific needs of the farmers, especially small and marginal farmers with a focus on research on organic farming.

### **Miscellaneous**

3.10.1 There should be greater degree of convergence between the several central ministries such as the Ministry of Agriculture & Cooperation, Ministry of Food and Consumer affairs, Ministry of Animal Husbandry, Dairying and Fisheries, Ministry of Water Resources, Ministry of Rural Development & Panchayatiraj, Ministry of Food Processing etc. Specifically this convergence is immediately necessary between the Ministry of Agriculture and Ministry of Food Processing for processing of horticultural products.