



Executive Summary



Distribution of award to achiever farmer



Farmers' participating in kisan mela

EXECUTIVE SUMMARY

AGRICULTURE SECTOR & ROLE OF EXTENSION

1. Agriculture is the backbone of Indian economy and agricultural development is central to all strategies for planned development. The agricultural growth has powerful leverage effects on the rest of the economy and all the three basic objectives of economic development of the country, viz. output growth, price stability and poverty alleviation are best served by the growth of the agricultural sector.
2. The Eleventh Five Year Plan of India envisages 4.1 percent growth in Agriculture to achieve 10 percent economic growth rate. The Plan Approach Paper emphasizes much on the need to revitalize the extension system focusing on increasing yields with known technologies, building a solid foundation of a highly productive and diversified agricultural sector through training and support for adopting improved production technologies. Agricultural extension services have, of late, gained more importance in the developmental agenda of the nation in the face of new challenges with which the agriculture sector is currently confronted.

ATMA MODEL

3. As part of its continued efforts to make the extension system farmer driven and farmer accountable and keeping in view the constraints observed in the T&V and post T&V extension programme, the Government of India drew up a new programme, in consultation with the States, to revive the agricultural extension system in the country. The institutional mechanism in the form of Agricultural Technology Management Agency (ATMA) at district level was initially pilot tested under Innovations in Technology Dissemination (ITD) component of National Agricultural Technology Project (NATP) in seven states of the country during the period 1998 to 2004. With the successful experimentation of the project, the Govt. of India decided to launch the ATMA programme as a full fledged scheme during 2005-06. The reform initiatives reflect the view that improvements in agricultural productivity require demand-driven, farmer-accountable, need-specific, purpose-specific and target-specific extension services.
4. ATMA is a registered society of key stakeholders, at the district level, involved in project planning and implementation of various farm activities for sustainable agricultural development in the district. ATMA functions under the guidance of a Governing Board [GB] that determines program priorities and assesses program impact. It also has a Management Committee [AMC] at the district level headed by the Project Director of ATMA which consists of all the representatives of the line

departments concerning agriculture & allied sector, KVK, farmers' organizations and NGOs. Under each ATMA, FIACs are created at the block level comprising of two bodies namely, Farmer Advisory Committee [FAC] and Block Technology Team [BTT]. The FAC is a body of farmer representatives representing various enterprises and socio economic strata. BTT, on the other hand, is a group of technical officers operating at block level representing agriculture and allied sectors. FAC and BTT, taken together, act as planning and operational arm of ATMA.

AN OVERVIEW OF PROGRESS

5. The Centrally Sponsored Scheme "Support to State Extension Programmes for Extension Reforms" more commonly known as the "ATMA Programme" was launched on 7th May 2005 covering 267 districts of the country in 27 States/UTs in the first phase. The scheme is presently under implementation in 586 districts of 29 States and 2 UTs of the country. Major achievements under the scheme since inception of the scheme in 2005-06 upto March 2009 are detailed below:

- (i) Farmer Oriented Activities viz. Exposure Visits, Trainings, Demonstrations, Field Days, Kisan Gosh ties, Kisan Melas etc. – Over 76 lakh farmers including 19.50 lakh farm women (26%) have been benefited.
- (ii) Commodity based Farmer Interest Groups (CIGs/FIGs) – 36682 CIGs/FIGs have since been mobilized at village level.
- (iii) Farm Schools – 6919 farm schools have since been set up in the field of outstanding farmers.

NEED FOR THE PRESENT STUDY

6. An effective monitoring and evaluation mechanism is an essential component for the success of any programme, more so where multiple agencies are involved in implementation with a very diverse target group. The Government of India has, therefore, devised in-built mechanism for monitoring and evaluation of the ATMA programme on a periodic basis. The activities at district level are monitored by the ATMA Governing Board at periodic intervals while at the State level, the scheme is monitored through an Inter Departmental Working Group (IDWG) functioning under the Chairmanship of Agriculture Production Commissioner (APC) or the Principal Secretary (Agriculture) of the State. In addition to departmental monitoring, the scheme also envisages third party monitoring and evaluation by the respective states as well as centralized evaluation and impact assessment from time to time. The present study is aimed at assessing the project impact on the target beneficiaries and in reforming the extension system in respect of various processes envisaged under the scheme and to make suitable recommendations for improving impact of the new system. The evaluation of extension impact involves measuring the relationship between extension and farmers' knowledge, adoption of better practices, utilization of

inputs and ultimately farm productivity and profitability and the related improvement in farm

UNIVERSE OF THE STUDY

7. The study has been conducted in two districts of Haryana and nine districts of Uttar Pradesh covering 18 Project Blocks spread over 245 villages in U.P and four Project Blocks spread over 70 villages in Haryana. The sample size for field survey comprised of a total of 7875 beneficiary farmers covering 6125 farmers from Uttar Pradesh and 1750 farmers from Haryana. The sample is a representative group comprising of beneficiary farmers drawn from various socio-economic categories [SC/ ST/ OBC / Women / General, Small Farmer / Marginal Farmer / Large Farmer, etc.]

SAMPLE DESIGN & METHODOLOGY

8. In order to give a fair representation to all the Agro-climatic Zones in both the States and to see the scheme impact on the varying regions and zones of the two States, a total of 9 districts from U.P. and 2 districts from Haryana have been selected randomly for the purpose of study covering each Agro-climatic Zone in both the States. Since the ATMA scheme is being implemented in all the districts of the sample States, there cannot be any control district and, therefore, for the purpose of comparison and analysis, baseline data as available in SREP, has been used. The study has been conducted on the set parameters applied for conducting socio-economic impact evaluation process.

STUDY TOOLS

9. The study tools had been so designed as to lead to meaningful data on well defined quantitative parameters relating to effective delivery of intended benefits, equity in extension of these benefits among between different social and economic categories of farmers and also gender-equity. In keeping with the cafeteria of activities under the scheme as well as the terms of reference of the present study, structured schedules were designed separately for beneficiary farmers, Project Directors of ATMA, BTTs, FACs, Commodity Oriented Farmers' Interest Groups [FIGs/CIGs], KVKs, line departments in the sampled districts viz. Agriculture, Fisheries, Animal Husbandry, Horticulture, etc. and the state level training institution (SAMETI).

STRUCTURE OF THE REPORT

10. The report has been structured and organized into eight Chapters. Chapter-I gives a brief introduction on the agricultural scenario and the genesis of the ATMA programme, Chapter-II deals with different approaches and methodologies adopted in conducting the study to make the same really of relevance and use to the client.

Chapter-III makes a critical evaluation of the ATMA implementation in the study area and Chapter-IV discusses the role of the stake holders in implementation of the scheme vis-à-vis their mandate. Chapter-V contains the analysis of the primary data obtained from the farmer beneficiaries in sampled districts with a critical assessment of the project impact in reforming the extension system. Chapter-VI details the economic impact of the programme on the targeted beneficiaries. Chapter-VII contains findings and conclusions of the study while Chapter-VIII gives suitable recommendations and policy suggestions based on the findings and conclusions.

FINDINGS OF THE STUDY

Bottom-up Planning and Participatory Approach

11. ATMAs in all the sampled districts both in Uttar Pradesh and Haryana have prepared Strategic Research and Extension Plans [SREP] by involving representatives of farmers, line departments of agriculture and allied sectors at the district level, KVKs and other research organizations. The SREPs have been duly considered and approved by the respective Governing Boards of ATMA in all the sampled districts. The exercise of SREP had for the first time brought research and extension personnel together with farmers and facilitated clear understanding of location-specific needs and problems of the villagers.
12. The State Extension Work Plan [SEWP] is being duly prepared and submitted to Ministry of Agriculture, Government of India by both the States of Uttar Pradesh and Haryana on an annual basis duly adhering to the procedure prescribed in this regard. SEWP contains a consolidated activity-wise plan incorporating all the district agriculture action plans [DAPs] in the state and state level activities to be carried out with activity-wise budgetary requirements as per the norms prescribed in the cafeteria.
13. The concept of participatory approach in the preparation and implementation of the developmental plans at the block/village level is yet to take firm roots in both the States of Uttar Pradesh and Haryana though the situation seems to be improving gradually from the year 2008-09 onwards. The study has clearly revealed that by and large, the block action plans were drawn and implemented by the officials with not much participation or involvement of farmers. The Farmers' Advisory Committee (FAC), a vital arm of Farm Information Advisory Centre (FIAC) at the block level did not hold separate meetings in any of the sampled districts to discuss, plan and set their own extension priorities in keeping with the demands and peculiar needs of all villages within the blocks. Joint meetings of FAC and BTT were, however, held in all the sampled districts of both UP and Haryana during 2005-08. The study team also noted that the farmers' feedback on the BAP prepared by BTT was limited to that provided by FAC members as no systematic exercise is being carried out in any of the sampled blocks towards assessing the needs and problems of farmers at village

level. During the field survey, a substantial majority of farmers – 76 per cent in Uttar Pradesh and 67 per cent in Haryana denied any role in the formulation of village or block development plans. Thus, the decentralization of planning process down to block level is slowly and gradually picking up though it is yet to percolate down to village level.

14. Group approach in extension had taken place to a limited extent only in Lucknow, Bareilly, Aligarh, Maharajganj & Barabanki districts in UP and none in Haryana. It is disheartening to note that only 4.8 per cent of the sampled beneficiaries have taken the membership of different types of FIGs. Out of them, about 32 per cent are members of agricultural marketing societies, 26 per cent in milk processing & 19 per cent for dairy development. The crop specific membership has been taken by 7 per cent each in cane growers' associations and fisheries societies and about 9 per cent in fruits & vegetables associations. The FIGs/CIGs provided with assistance money were very few both in UP and Haryana. The level of awareness about financial assistance to FIGs was abysmally low at 3.3 per cent. It was observed that all the line departments in the sampled districts were given targets to mobilize group formation but they have met with a limited success. Most of the FIGs formed were dormant and non-functional. The FIGs who have availed seed money under the scheme largely perceive the assistance as a dole or an incentive without any liability to return the funds. Similarly, a few of the Self-Help Groups formed have not gone beyond saving and inter-lending. These FIGs and SHGs have yet to become self propelled institutions. Thus, the concept of Farmers' Interest Groups [FIGs] is yet to take roots in both the States of Uttar Pradesh and Haryana, in the form in which it was envisaged.

Fund Utilization

15. In both the States of Uttar Pradesh and Haryana, the respective State Governments have set up SAMETI as the nodal institution for implementation of the scheme. The study team observed that the processes prescribed for allocation of funds among the districts based on sanction and release thereof by Government of India was being duly followed. The Governing Boards in the sampled districts made allocation of funds to line departments, FIACs, KVKs, NGOs etc. keeping in view the sanction and availability of funds. The Management Committee in all the sampled districts were adhering to the guidelines with regard to release of project funds to each of the FIAC comprising of BTT and FAC at the Block level as well as to the line departments and other agencies for executing their approved field level extension activities based on the District Action Plan [DAP]. Separate accounts/sub-accounts both agency-wise and activity-wise have been invariably maintained in all the districts. The funds were placed in a bank account jointly operated by Chairman, FIAC and the Convener of BTT in the sampled districts. The accounts were found to have been duly audited by Chartered Accountants appointed by the SAMETI/State Nodal Office at the state level.

16. The utilization of funds under ATMA in both the States of Uttar Pradesh and Haryana had remained below satisfactory level during the initial period after launch of the scheme but had gradually improved from 2007-08 onwards. The State Governments have also fully released their corresponding share and have also been sending Utilisation Certificates to Gol periodically. At the district level, the percentage utilization of funds during the period 2005-2008 was exceptionally well in the districts of Baghpat, Aligarh, Maharajganj and Bareilly and somewhat moderate in other districts. In the districts of Sirsa and Sonapat in Haryana, the percentage utilization of funds during the period 2005-2008 was in the range of 62 to 64 per cent, which cannot be considered as satisfactory. Overall, in the State of Uttar Pradesh, the utilization was quite high at 92.4 per cent as compared to 63.1 per cent in Haryana, which may be termed as poor.
17. Activity wise actual spending during the period 2005-2008 showed that under "Farmer Oriented Activities" the utilization of funds in all the sampled districts of Uttar Pradesh had exceeded the stipulated 45 per cent limit with Allahabad and Barabanki districts spending more than 60 per cent. In Haryana, the expenditure incurred under this category was as low as 30 per cent in Sirsa district while Sonapat with 50.6 per cent expenditure exceeded the stipulated limit.
18. Under 'Farm Information Dissemination' (FID) category during the period 2005-2008, Baghpat in Uttar Pradesh with 10.3 per cent utilization against the stipulated 20 per cent limit under this category was the highest while the percentage utilization in other districts was quite low in the range of 7.2 to 9.7 per cent. In Haryana, the expenditure incurred under this category by Sirsa district with 17.5 per cent utilization was quite impressive while Sonapat fared poorly with just 7.5 per cent utilization. Overall, Haryana with 12.8 per cent utilization fared better than Uttar Pradesh (8.5 per cent) under FID category though both the States fell short of the stipulated limit.
19. Under 'Agricultural Technology Refinement, Validation and Adoption through Research-Extension-Farmer Linkages' category, Allahabad (21.6 per cent), Maharajganj (16.2 per cent) and Jalaun (15.4 per cent) in Uttar Pradesh achieved more than stipulated utilization of 15 per cent under this category whereas other districts with a range of 7-9 per cent utilization substantially fell short of the limit. In Haryana, Sirsa with 17.6 per cent utilization exceeded the stipulated limit while the achievement of Sonapat district was abysmally low at 2.7 per cent. Overall, the State of Uttar Pradesh achieved a better utilization of 13.5 per cent under the FID category as compared to Haryana at 10.6 per cent.
20. Under 'Administrative Expenses' category, during the period 2005-2008, the districts of Bareilly, Barabanki, Maharajganj, Saharanpur and Lucknow in Uttar Pradesh spent around the stipulated limit of 20 per cent while Jalaun, Aligarh and Baghpat spent in the range of 26-29 per cent under this head, which is high. Allahabad with just 8.9

per cent expenditure on administration was the least, which is really appreciable. In Haryana, both Sirsa (34.9 per cent) and Sonapat (39.2 per cent) had spent much above the stipulated limit on administrative expenses. Overall, the percentage utilization under 'Administrative Expenses' category was quite high in the State of Haryana (36.9 per cent) in comparison to Uttar Pradesh (22 per cent) which spent around the stipulated limit.

21. Fund utilization by line departments in the sample districts of Uttar Pradesh during the period 2005-2008 was almost cent percent in most of the districts barring Jalaun and Lucknow which indicates need based utilization of the funds received by the departments in the years concerned. Similar situation was witnessed in the two districts of Sirsa and Sonapat in Haryana as well.

Synergy among Line Departments

22. The study team observed that synergy among the line departments was absolutely lacking in almost all the sampled districts. Since line departmental heads are positioned in the district headquarters, the responsibility of the major part of work under ATMA programme right from the preparation of the Block Action Plan to its ultimate execution has devolved on the Block Agriculture Officer, who is extremely overburdened. There is lack of ownership even among officials and also among many farmers. There is a great shortage of field functionaries with top-heavy agricultural administration. Field functionaries, especially at the Block level and below are quite inadequate for technology dissemination. The vertical and horizontal linkage between line department and farmer-researcher-extension linkage has still to go a long way. Hence, the activities initiated in the project do not really reflect the demand-driven bottom-up planning. Decentralization process with role clarity and accountability with responsibility is yet to take a real shape.

Involvement of Voluntary Sector in Extension

23. The services of NGOs in most of the districts are being utilized for motivating and mobilizing farmers for participating in project activities and organising them into Farmers' Interest Groups. The study shows that the involvement of NGOs in extension activities is somewhat better in the districts of Jalaun, Barabanki, Lucknow and Allahabad. The expenditure incurred on NGO sector in the sampled districts of Maharajganj, Allahabad and Barabanki had been somewhat better than the others in UP. In Haryana, the expenditure incurred on NGO sector in Sirsa had been slightly better. Lucknow has trained maximum number of agricultural graduates (10) through the facilitation of MANAGE under the ACABC scheme closely followed by Bareilly, Maharajganj and Allahabad. The other districts seem to be lagging far behind in the efforts to train agripreneurs. Though the scheme envisages involvement of input dealers in extension activities, being in closer proximity to farmers in villages, it is yet to take shape in any of the sampled districts in both the States of U.P. and Haryana.

Public-Private Sector Participation

24. The process of public-private partnership has been initiated in a few districts of Uttar Pradesh particularly, Lucknow, Allahabad, Barabanki and Jalaun where some FIGs have been linked with the private sector through contract farming. The districts of Jalaun, Maharajganj and Aligarh have also taken lot of efforts to provide technical inputs to FIGs through the agripreneurs trained under ACABC scheme and also facilitated linkages of the farmers' groups with financial institutions for micro-credit in line with SREP strategies. Uttar Pradesh has entered into MoU with a few corporates viz. ITC, Bayer Bio Science, Excel Crop Care, etc. under PPP Mode for Extension activities. An MoU has also been executed with Jagaran Prakashan for publication of journal titled "Khet Khalihan" for propagation of farm related matters at the village level. Similarly, Haryana has engaged M/s Icon Communications Pvt. Ltd. for bringing out a fortnightly wall magazine "Pratibaddh" under which wall posters containing important information regarding Govt. schemes/programmes for the benefit of farming community and villagers, are being prominently and conspicuously displayed in all important locations in villages for the benefit of the farming community. Thus, the private sector extension providers are slowly and gradually assuming role in rendering need-based extension services at the grassroot level along with the official agencies, though it has still a long way to go.

Implementation of Innovative Activities

25. The States of Uttar Pradesh and Haryana have taken a number of innovative extension initiatives. Some of the innovative initiatives taken by Uttar Pradesh are, inter alia, setting up of Community Radio Stations (CRS) through KVKs in 5 districts namely, Saharanpur, Aligarh, Jalaun, Barabanki and Baghpat; establishment of 71 District level training institutions to cater to the training needs of block and district level functionaries, revitalisation of extension system through the concept of farm schools at village level, one-year Post Graduate Diploma Programme in Extension Management through MANAGE under distance learning mode for enhancing the skills and developing the capacities of public sector extension functionaries, involvement of agripreneurs trained under ACABC scheme in extension activities, farmer-to-farmer extension through Kisan Vidyalayas at each Nyaya Panchayat, provision of one Mitra Kishak at each Gram Sabha by mobilization of trained progressive farmers for extension work at village level, linking farmers' clubs with ATMA in all districts, training of select NGOs/input dealers/para-extension workers for implementation of extension activities, involvement of corporates under PPP mode for extension activities. replication of success stories and best practices under farming systems approach, development of various modules on agricultural practices and farming systems through KVKs and State Agriculture Universities, organizing periodic kisan melas and agricultural exhibitions during kharif and rabi seasons at the state level to disseminate latest agriculture practices and technologies for farming community and publication of journal titled "Khet Khalihan" for propagation of farm

related matters. Similarly, the initiatives taken by the Government of Haryana include launch of Edusat Telecast Programme through UTKARSH Society for disseminating latest technology on agricultural practices through talks, live panel discussions, demonstrations and weather report; toll free SMS services for farmers whereby the problems / queries raised by them are answered / redressed through return telephone call from technical experts; conduct of farmer development workshops on a periodic basis in several districts during kharif and rabi seasons; information dissemination through sale outlets of input dealers; promotion of kisan clubs of progressive farmers in all districts; communication of critical extension messages to farmers through children studying in schools; introduction of State level, District level and Block level Farmer Awards in the State for progressive & achiever farmers and introduction of award for Best ATMA district; involvement of corporate in extension activities.

Rewards and Incentives to Farmers/FIGs

26. It is observed that the system of granting rewards / incentives to good, progressive and achiever farmers as also to good performing FIGs and ATMA district has not yet been started in both the States of Uttar Pradesh and Haryana despite provision of funds for the same. However, it is gratifying that the Inter Departmental Working Group for the State of Haryana has recently approved a proposal for introducing a reward scheme for farmers and a sub-committee of departmental heads has since been constituted to initiate necessary action in the matter and to recommend awards to deserving farmers through a transparent and judicious selection process.

Convergence of Extension Activities

27. The concept of an integrated or single window extension system, as envisaged under the ATMA programme is yet to gain ground in both the States of Uttar Pradesh and Haryana. Though SREP provides a mechanism for ensuring convergence of all activities of extension, the resources for which are being provided under different schemes of Centre/ State Governments, in actual practice, the concept has not been fully adopted in the sense in which it is meant. Most of the line departments and extension functionaries were not clear about the approach and ways of integrating extension through ATMA. It is, therefore, imperative to sensitise the extension functionaries of all the line departments on the advantages of synergy and the approach to be adopted for creating the desired linkages and integration of all the government schemes for agriculture & allied sectors with the activities of ATMA.

Sustainability of Extension Services

28. The field survey revealed that the beneficiary contribution of 10 per cent is actually being adjusted against the expenditure on activities such as training, demonstrations and exposure visits for the purpose of accounting though actually no contribution is

made by the beneficiaries. During the field interactions with farmers' interest groups and the farmers' organisations, a large majority of them perceived that the farmers would be willing to pay if farm advisory and other essential services are provided to them periodically on their farm field and also on call as & when required. However, the general refrain was that the quality of services should be of high standard and also reliable.

ROLE OF STAKE HOLDERS IN ATMA

Governing Board and Management Committee

29. The Governing Boards (GBs) have been duly constituted and notified in all the sampled districts of both the States of Uttar Pradesh and Haryana with Deputy Commissioners as the Chairmen and Deputy Director [Agriculture]-cum-Project Director, ATMA as the Member-Secretary. The ATMA Management Committees [AMCs] have also been put in place in all the districts under the Chairmanship of the Deputy Directors [Agriculture]-cum-Project Directors at district level with technical officers of agriculture & allied sectors, ZRS, KVK, representatives of the Farmers including women and SCs, NGOs etc as members. The study has, however, revealed that the meetings of the Management Committee and the Governing Boards in all the sampled districts had been very erratic during the initial years i.e. 2005-06 to 2007-08. As a matter of fact, though there had been gradual improvement in the periodicity of meetings now, the meetings had not been held as per the Gol guidelines in any of the sampled districts both in UP and Haryana. The number of field inspections conducted by the Project Directors of ATMA as also the number of farmers contacted during such field visits during 2006-07 onwards also seems to be picking up slowly after somewhat sloppy performance during the initial years.
30. The ATMAs in each of the sampled district had no separate and exclusively dedicated staff to undertake various activities under the scheme. The staff in the agriculture department at the district level, therefore, looks after all the activities of ATMA in addition to their usual duties. All the districts had a very small complement of staff looking after the works of ATMA which included, apart from the Project Director, a Technical Assistant or a Subject Matter Specialist (SMS), an accountant/cashier and a clerk. The Project Directors, as the highest ranking agricultural official in the district, are not dedicated for ATMA activities alone and are over burdened with various other agriculture activities in the district.

Farm Information and Advisory Centres [FIACs]

31. The Farm Information and Advisory Centres [FIACs], comprising of BTT and FAC, have been duly put in place at the Block level in all the sampled districts both in Uttar Pradesh and Haryana. However, FIAC in the project blocks in none of the sampled districts possessed their own building and were found to be operating from a small

but insufficient space. There was neither any PC (computer) in any of the offices nor any staff in position for looking after the ATMA programme. It is imperative that the ATMAs in both UP and Haryana take up the task of construction of FIAC buildings in all blocks on priority and equip them with necessary infrastructural facilities viz. computer, library etc. so as to ensure effective monitoring, coordination and execution of field activities.

32. The frequency of meetings of Farm Information Advisory Centres [FIAC] in all the sampled districts has witnessed a progressive trend during the 3 year period from 2005-2008. The FIACs in Lucknow, Allahabad and Barabanki in UP and Sirsa in Haryana seem to be more active as compared to the others. Generally, as a pattern, FIACs usually hold meetings on an average around three times in a year at a frequency of one meeting during each crop season to discuss, plan and execute extension programs at the block level.

Representation of Women, SC/ST Farmers and NGOs

33. Among the sampled districts of Uttar Pradesh, Jalaun, Baghpat and Aligarh had less than the stipulated 30 per cent representation of the farming community in the Governing Boards. Barabanki, Allahabad and Bareilly in UP had good representation (above 40 per cent). In Haryana representation was 37.5 per cent and 41.1 per cent in Sirsa and Sonapat respectively. Women farmers in the Governing Boards was 16.7 per cent in Bareilly, 20 per cent each in Jalaun, Lucknow, Saharanpur, Baghpat, Aligarh and Maharajganj, 28.6 per cent in Sonapat and 33.3 per cent in Sirsa while Allahabad and Barabanki remained unrepresented. All the sampled districts had one representative from SC/ST community thereby adhering to the stipulation in the guidelines on SC/ST while guidelines in regard to representation of women farmer were followed only in Sirsa district. The representation of the farming community in the ATMA Management Committees was quite substantial in Allahabad (35.7 per cent) and Maharajganj (33.3 per cent). The other districts except Barabanki had followed the stipulated guidelines in this regard. Representation of women farmers existed in only four districts (Lucknow, Saharanpur, Maharajganj and Barabanki) in UP. Similarly, Management Committees in Lucknow, Baghpat, Bareilly, Aligarh and Sonapat districts of the two States remained devoid of SC/ST farmers' representatives. The situation in some districts indicate program implementation without heeding to the underlying objectives that defeats the very essence of the ATMA program. Women farmers were reasonably represented in the FACs of all the sampled districts ranging from 30.8 per cent (Lucknow & Allahabad) to 40 per cent (Aligarh). In Sonapat, it was a trifle low at 27.3 per cent. The representation of SC/ST farmers in the FACs were good (23 to 36 per cent) in Jalaun, Lucknow, Allahabad, Barabanki, Sirsa and Sonapat. The representation of SC/ST farmers in Saharanpur and Maharajganj at 18.2 per cent while that in Baghpat and Bareilly with 16.7 per cent were slightly lower than conceived. The representation in Aligarh (6.7 per cent) was too low to be effective in securing enough of the community's interests.

Role of SAMETI

34. At the State level, Uttar Pradesh has set up the State Agricultural Management Training and Extension Training Institute [SAMETI] at Lucknow whereas the Haryana has set up HAMETI at Jind which function as apex training institutes for providing needed HRD support and capacity building in innovative areas of extension delivery in the States. SAMETIs had organized several programmes for diverse skill up-gradation of district, block and grassroots workers in different areas such as farming system approach, participatory management, community mobilization, computer application, etc. They have played an important role in imparting trainings to project officials of different levels but they can still play a better role by participating in development of HRD plan of the ATMA districts. Focus, however, needs to be laid on the capacity building of members of block technology teams, farmers' advisory committees and farmers' organizations. Size of this target group being very large and varied in knowledge level, no single institute/agency could handle the training requirement. Thus, the involvement of KVKs and other local level training institutes and local resource persons must be increased to supplement the efforts of SAMETI. The trained ATMA officials and district heads of line departments are also imparting training to BTT, FAC and FO members at local level, which is a healthy trend. All ATMAs have executed capacity building programs for skill up-gradation of extension functionaries at different levels and non-official members of different institutions. In some districts, large-scale capacity building efforts were taken for improving the skills of grassroots workers also. Notwithstanding the above, interaction with extension functionaries at the district and block level has revealed that many of the field functionaries have still not received training in one or more aspects. Similarly, ample number of FAC members could not be trained on different aspects. Thus, a time bound capacity building plan is required to be prepared with a target to train all the members.

Inter Departmental Working Group (IDWG)

35. The States of Uttar Pradesh and Haryana have duly constituted and notified a State level Inter Departmental Working Group [IDWG] under the Chairmanship of the Principal Secretary (Agriculture) to guide, coordinate and monitor the implementation of ATMA programme in the districts. IDWG comprises of the heads of all the line departments in the State namely, agriculture, rural development, finance, animal husbandry, fisheries, horticulture, soil conservation, women development, panchayati raj etc. besides VC of SAUs as members. The Directors of Agriculture in both the States have been nominated as the Member Secretary of the Group. Uttar Pradesh had held IDWG meetings at least once in each year during 2005-2008, while Haryana held it only once each in 2005-06 and 2009-10. The fact remains that the guidelines in this regard has been clearly overlooked in both the States of UP and Haryana though relatively, the position in UP seems to be better as compared to Haryana, which showed a lackadaisical attitude during the initial stages. This could

be attributed to the initial inertia after launch of the programme in 2005 and the situation appears to be gradually improving over the years. The IDWG have taken a number of policy decisions and interventions on inter departmental matters including issues related to gender mainstreaming, Public-Private Partnership in extension, etc. Looking into some of the important issues taken up in the meetings in the recent past, the eagerness and importance bestowed by the State administration is quite visible. It is noteworthy that the Government of Uttar Pradesh has appointed State Coordinators to exclusively focus on ATMA works. They have become crucial links between the State Nodal Officer, SAMETI and different ATMA bodies at the district level. In general, these State Consultants have done a good job in increasing the awareness about the project among participating departments and institutions; promoting effective inter-departmental coordination; and organizing training. The Government of Haryana could also consider appointing a suitable official, preferably a senior level retired officer, as State Coordinator to provide the needed focus and attention to extension activities in the State.

Role of Krishi Vigyan Kendras (KVKs)

36. The ATMA model envisages a proactive role for KVKs in operationalizing the scheme in the district. The expenditure incurred under the head “Agricultural Technology Refinement, Validation and Adoption through Research-Extension-Farmer Linkages” vis-à-vis the amount released to KVKs under ATMA in the States of Uttar Pradesh and Haryana reveal that in UP, except Jalaun, Lucknow and Baghpat, the level of spending under ATMA in rest of the districts had been optimum. Level of expenditure incurred in the three districts had been less than even 10 per cent. It is disturbing to note that no fund had been released to the KVKs in three districts namely, Bareilly, Barabanki and Maharajganj and only a meagre release in Lucknow. Equally baffling had been the low scale of spending by KVKs in Lucknow and Allahabad. In Haryana, the quantum of fund released to the KVKs had been optimal in Sonapat but less in Sirsa. Similarly, the scale of spending by KVKs in Sirsa had been extremely low compared to that in Sonapat. The expenditure incurred on REF Linkages had been as per norms in four districts of UP viz., Jalaun, Bareilly, Maharajganj and Allahabad and in Sirsa district of Haryana. The rest of the districts of both states had miserably failed to do justice to ‘research-extension-farmer linkage’ that is so important an aspect of ATMA. In districts like Barabanki & Bareilly in UP and Sirsa & Sonapat in Haryana, the involvement of KVKs in extension activities under ATMA has been very less during the period 2005-2008 though the situation seems to be gradually improving now. Thus, the ATMA structure at the district level has failed to utilize the instrument of KVK to its full potential. There is a felt need for providing greater autonomy and flexibility to KVKs so as to ensure proper integration and synergy between with the ATMAs at the district level.

IMPACT OF THE PROJECT IN REFORMING THE EXTENSION SYSTEM

Brief Profile of Sample Farmers

37. As per the size of land holding, more than half (50.6 per cent) of the aggregate sample farmers of the two states were marginal farmers. However, share of landless (tenant) farmers was very low (3.67 per cent). Small farmers accounted for nearly a quarter (23.6 per cent) followed closely by large farmers (22.1 per cent). Overall 22 per cent farmers were illiterate with a little higher literacy of 82 per cent in Haryana as compared to 77 per cent in UP. The overall women farmers' representation is 10.9 per cent of the total sample with 11.7 per cent of them from Uttar Pradesh and 7.9 per cent from Haryana. The distribution of women in terms of farm size and education brings out that most of the women farmers are marginal/landless category with much higher illiteracy indicating that farming by women may be due to compulsion of illiteracy, separation / helplessness.
38. Occupation wise, agriculture is the main income activity for the predominant majority of farmer respondents. Besides, the landless and marginal farmers are augmenting their income from other activities while small and other farmers are taking up animal husbandry in Haryana and both animal husbandry and horticulture in UP to sustain their livelihoods. The main difference in occupational distribution of men and women is that animal husbandry, especially dairy is taken up more by the women. This finding needs special attention in devising appropriate gender-specific extension strategies like training, exposure visits, etc.
39. Canals and tube wells/wells are the major sources of irrigation in both the states. As regards methods of irrigation, flood irrigation is a universal mode, resorted to by the majority of beneficiary farmers in all the sampled districts of UP and Haryana.

Farmer Oriented Extension Activities

40. There has been a manifold increase in the programmes on trainings, demonstrations and exposure visits in the sampled districts after the launch of ATMA programme. The analysis of data relating to participation of farmers in farmer oriented activities reveal that on an average two-thirds of sample farmers (68 per cent) have attended extension programmes in agriculture, 16 per cent in animal husbandry, 10 per cent in horticulture, 6 per cent in fisheries, 3 per cent in sugarcane and 1 per cent in joint programmes. The percentage total of more than 100 indicates participation of some of them in more than one programme. It is interesting to note that the districts with lower level of education and more of smaller holdings have higher rate of participation especially in training. The position of female beneficiaries' participation in extension activities had been low in both States but Haryana had marginally better level of participation in training and exposure visits.

41. Over 51 per cent of the farmers expressed the view that they could upgrade their skills in various farm practices in view of their participation in training and capacity building programmes. As regards utility, only 31 per cent of farmers found the training programmes fully useful and 26 per cent did not find them useful at all while the remaining termed them as partially useful.

Research Extension Farmer (REF) Linkage

42. The integration of research, extension, farmer and market linkages is an important agenda under ATMA. An overwhelming majority of the respondent farmers reported that the 'Kisan Goshties' are held in their area but it appears to be an annual event to over 57 per cent of the farmers. Of the participating farmers, about 85 per cent found them useful. Only 30 per cent of the respondents confirmed organization of Field Days and most of them (97 per cent) said that they are held once in a quarter. Overall, participation rate was as high as 88 per cent and the field days were found useful by as many as 91 per cent of participants.
43. Overall 48 per cent of sample farmers reported holding of exhibitions / fruit & vegetable shows in almost all the selected districts and the level of participation was to the extent of 83 per cent. An overwhelming majority of farmers reported usefulness of such events in disseminating farm related practices and modern technologies. Only 28 per cent of the respondent farmers affirmed holding of Farmer-Scientist interactions in their area. Across the districts, such meetings were reported by maximum 52 per cent farmers in Saharanpur and by the minimum 13 per cent farmers in Bareilly. The issues raised in these meetings were reported by 67 per cent participants as being referred to agricultural universities / departments.

Setting up of Farm Schools

44. An important means to upgrade the process of dissemination in crops and live stock is farmer-to-farmer approach, which is found to be very pertinent as indicated by National Commission on Farmers. Of the respondent farmers, only about 10 per cent reported setting up of farm schools in their villages. Activity-wise, 89 per cent of these schools are for agriculture in general, 7 per cent for dairy/poultry, 3 per cent for horticultural activities like bee-keeping, fruits/vegetables etc. and 0.8 per cent for fisheries. Participation in these schools and utility of the meetings, etc. were affirmed by about 81 per cent of the respondent farmers. The adoption of the learning from these schools was asserted by relatively less number (about 56 per cent) of farmers.

Adoption of acquired knowledge in Farm Field

45. Training, demonstrations and exposure visit programmes have been found to be largely beneficial to farmers though it varied across the sampled districts. As per the feed back of sample participants in these programmes, the utility of exposure visits is

found to be the maximum (95 per cent) followed by demonstrations (93 per cent) and the least (69 per cent) being trainings. However, the participation in these programmes was skewed across districts and there is a felt need to make it more inclusive on the basis of objective criterion like number of holdings or cultivated area or both preferably with some weightage. The utility level of various 'farmers oriented activities' suggests that exposure visits and demonstrations should be given more priority in allocation of funds. In other words, the allocation of budget should be decided keeping in view the utility of these extension activities.

46. About 34 per cent of the beneficiary farmers affirmed that the knowledge & skills acquired through participation in training, demonstration and exposure visit programmes are actually being adopted in their own farm field varying from the minimum of about 13 per cent in Lucknow to the maximum of 61 per cent in Baghpat and 50 per cent in Sonapat with coefficient of variations of 44 per cent across districts. A substantial section of the farmers have also affirmed that they had disseminated the learning among fellow farmers by sharing their experiences and encouraging them to adopt the same on their farms.

Adoption of New Farm Practices & Technologies

47. Of the sample farmers, about 52 per cent felt having gained knowledge of new practices / technologies under ATMA programme. However, the feedback in this regard varied widely over districts from the minimum 17 per cent in Lucknow to the maximum 77 per cent in Sonapat & 71 per cent in Bareilly districts. The number of farmers taking benefit of deep summer ploughing practice has appreciably increased after ATMA to about 81 per cent from 66 per cent earlier. Likewise, there was increasing use of various cultures after ATMA like Rhizobium culture which increased from about 14 to 21 per cent, use of PSM culture from about 17 to 24 per cent, blue green algae from 4 to 8 per cent and weedicides from 49 to 62 per cent, which is indicative of the benefits of this technological information being propagated to the farmers under the scheme.
48. The use of pheromone traps is at initial stage as it is being used by only 3 per cent even after ATMA but the use of bio-pesticides has increased from 13 to 30 per cent after ATMA. The advisory services provided by the extension system on integrated pest management are reported by about 31 per cent farmers as compared to 13 per cent before ATMA. Similarly, the advice on intercultural operations has reportedly increased from 61 to 68 per cent after ATMA. Thus, the farmers' summary opinion as well as activity-wise opinion substantiates that dissemination of new technologies and practices have improved under ATMA.

Removal of Inhibitions about the existing Practices

49. Kisan goshties, field schools and scientists meeting were found useful to the extent of 80 to 90 per cent and even participation of farmers was also about 90 per cent in these farm knowledge dissemination activities. As per summary feed back of farmers, about 33 per cent feel that their inhibitions about the existing practices like summer ploughing, timely sowing and watering have been removed due to participation in kisan goshties, farm schools, etc. Across the districts these clarifications were satisfying the maximum farmers (50 per cent) in Bareilly, Baghpat (47 per cent) and Sonapat (42 per cent) districts with coefficient of variations of 34 per cent.

Increase in Productivity/Production

50. The increase in productivity was reported by 18 per cent of sample farmers the maximum respondents being from Bareilly (51 per cent) and Aligarh (34 per cent) whereas it was the minimum in Saharanpur (2.4 per cent) and Maharajganj (3.5 per cent) with coefficient of variations of 69 per cent over the districts.

Farm Information through Print & Electronic Media

51. Mass media has a vital role to play in agricultural extension which is yet to be exploited to its full potential. The coverage of agricultural extension in All India Radio was 90 minutes per week in the 11 districts before ATMA implementation and has now increased to 810 minutes after three years thanks to almost four hours coverage from Allahabad and Barabanki, though it may not be directly attributed to ATMA. Doodarshan is covering farm related information for only two hours per week, which is quite inadequate. Distribution of printed brochures, leaflets, pamphlets etc. as a medium for dissemination of farm related information to farmers was found to have substantially increased after launch of ATMA programme. About 55 per cent of the respondent farmers reported availability of leaflets/pamphlets on the package of practices and about 87 per cent of them found the literature very useful with the highest response (93 per cent) in Barabanki and the lowest (48 per cent) in Saharanpur which appears to be correlated with the level of education.

Increase in Visits of Extension Officials

52. The visits of government officials in the category 'very frequently' has been a revelation for the ATMA scheme as there is a significant increase in farmers reporting this after 3 years of ATMA compared to their before ATMA response. The above change has occurred across all the sampled districts of the two states but the 'very frequent' visits have more than doubled after ATMA in Sonapat, Barabanki, Lucknow and Jalaun. Hence, it could be conclusively said that ATMA has definitely increased the frequency of visits to farmer's field by the government extension officials.

Availability of Technical Advice

53. The level of awareness of the farmers on the new varieties of seeds, use of certified seeds, application of fertilizers, micronutrients, various cultures and farming practices has increased after the project implementation. Availability of technical advice to farmers on new practices and technologies has impacted their higher/rational use under ATMA. The farmers using more than 50 per cent of certified seeds were about 16 per cent after ATMA as compared to just less than 1 per cent before ATMA. The percentage of farmers not using certified seeds at all are about 18 per cent after ATMA which was as high as 35 per cent before ATMA. This may be termed as a significant achievement which could be attributable to ATMA.

Increase in Facilities

54. Soil testing facility is being availed by about 46 per cent of the respondent farmers after ATMA as compared to 32 per cent before. Availability of reports in time has also improved from 50 to 59 per cent. The need for checking water quality was felt by 3 per cent farmers only, especially in Sirsa (15 per cent) and Baghpat (11 per cent). Thus, the availability and use of soil testing, water testing, testing of micronutrients facilities have improved though slightly, but the delivery of reports has improved much more which itself may induce more farmers to use them.
55. The post harvest facilities like grading, packing, processing, cold storage were reported as non-available by about 77 per cent of farmers even after ATMA. The analysis indicates almost negligible change in availability of post harvest facilities due to ATMA.

Use of Vermi-compost

56. The use of vermi-compost, mainly for paddy and wheat crops, has increased to 23.5 per cent after ATMA from 7.5 per cent before ATMA, is a significant impact within a short period. As regards reduction in expenditure, such a claim has not been endorsed by an overwhelming majority of the respondents. The costs and returns ultimately affect the propagation and uses of technology. Attention will, therefore, be required to be paid on ways of economizing the costs in reaching the technology to farmers.

Advice in Marketing/Value Addition

57. The farmers' responded increase in availability of advice in general for marketing and value addition from about 2 per cent before ATMA to 8 & 15 per cent respectively after ATMA. On specific questions like marketing channels adopted and adequacy of price, it is observed that even after ATMA, the majority (about 66 per cent) of farmers

are selling their produce through private dealers, followed by mandis (64 per cent) and Government agencies (40 per cent).

SECTOR SPECIFIC SERVICES AND FACILITIES

Animal Husbandry/Dairy

58. Supply of quality feed and semen was reported by just 10 and 5 per cent of farmers respectively after ATMA, which means that these two important inputs are largely in private domain. Even the number of health camps does not indicate substantial increase. Advice in value addition was reported by only 5 per cent after ATMA. Thus, it is indicative of the fact that something substantial in dairy extension is yet to be realized through ATMA.

Horticulture

59. The supply of seed and planting material was reported from government agencies by about 3 per cent farmers before ATMA which increased to just 8 per cent after ATMA indicating very feeble impact of ATMA on this score. The maximum supply was in Sonapat (37 per cent) and Aligarh (14 per cent). Advice / assistance in marketing and post harvest management are reported by only about 3 per cent after ATMA which is a matter of concern. Therefore, the government extension should focus on supply of seed and saplings while marketing and post harvest management have to be facilitated by government extension in public-private partnership mode.

Fisheries

60. The supply of fingerlings was reported by 4.9 per cent farmers in post ATMA as against 1.3 per cent in pre ATMA situation. The response of farmers is very low, about 2 per cent for assistance in construction of new ponds or renovation, supply of fish feed, supply of fishing nets and assistance in marketing. It indicates that the actual facilities for fisheries have not been provided though training programmes etc. have well been undertaken.

ECONOMIC IMPACT OF ATMA IN THE STUDY AREA

Impact on Cropping Pattern

61. Overall GCA of sample farmers has increased in UP by 1.05 per cent and decreased in Haryana by 9 per cent which indicates that the change in cropping pattern is entirely due to intra shifting of acreage among the crops. Crop-wise changes revealed that the acreage has shifted from barley, paddy, bajra, and sugarcane crops to the crops of wheat, R & M, cotton, pulses, vegetables, fodder and horticulture. The districts which have recorded prominent changes in cropping pattern are Sonapat,

Baghpat and Saharanpur which are in the vicinity of major consumption centres like Delhi and Dehradun. Therefore, the shift may be partly due to increase in yield of area gaining crops and partly due to other reasons like better procurement price being in close proximity to main urban consumption centres.

Impact on Yield

62. Yield increase has been recorded in wheat by about 14 per cent, rapeseed and mustard by 19 per cent, paddy by 10 per cent, maize & bajra by 10 per cent and 18 per cent and pulses especially the Arhar has increased its yield by 5 per cent. Sugarcane has recorded decrease of about 6 per cent in yield. At state level, increase in yield is relatively higher in Haryana in case of wheat, paddy, maize and bajra whereas UP has recorded higher increase in R & M. At district level, the higher increase in yield of wheat crop is Baghpat, Sonapat, and Maharajganj; in R & M is Sonapat & Bareilly; paddy in Baghpat and Sirsa, and maize in Saharanpur and Sonapat. These are the districts which have experienced maximum changes in cropping pattern too. The above discussion on changes in yield has positively influenced changes in area under individual crops which allows us to conclude that the ATMA has played a significant role through yield in changing the cropping pattern.

Impact on Horticulture

63. The area under all fruit crops has increased by about 36 per cent. In Haryana; banana & floriculture have come up from negligible base in Sonapat district and citrus fruits in Sirsa. In Uttar Pradesh, banana, citrus and floriculture have increased their area more than the traditional mango crop. Among the districts of UP, guava has increased in Jalaun, citrus in Allahabad while Saharanpur has registered a sizable increase in area under banana, citrus and floriculture. It is difficult to attribute the total change to extension as the changes appear more in the districts neighbouring big cities e.g. Sonapat and Baghpat being in close proximity to Delhi while Saharanpur being nearer to Dehradun as well as Chandigarh. The other interesting observation is the increasing size of gardens from 2.75 acre in 2005-06 to 3.66 acres in 2007-08. The increase was much higher from 4.67 acres to 10.52 acres in Haryana as compared to increase from 2.60 acres to 3.08 acres in UP.

Impact on Price Awareness

64. Over 65 per cent of the farmers were aware about the minimum support/state administered price (MSP) of sugarcane. The role of ATMA through government departments in creating price awareness was reported by 37 per cent only and a majority of farmers (53 per cent) came to know about MSP through their fellow farmers and the remaining 10 per cent from procurement agencies.

Reduction in Cost of Production

65. Of the total sample, about 15 per cent have reported some savings in their cost of production (COP) which was about 16 per cent in UP as compared to 12 per cent in Haryana. Among the districts, the maximum farmers in Aligarh (31 per cent) reported saving in COP followed by about 23 per cent in Baghpat & Bareilly and 20 per cent in Sonapat & Allahabad. The extent of savings in the total COP was upto 10 per cent to an overwhelming majority of farmers and savings in the range of 10 to 25 per cent to about 5 per cent of farmers.

Production Increase Attributed by farmers to ATMA

66. About 25 per cent of the sample farmers admitted some increase in agricultural production due to ATMA. The extent of increase in Rs. per acre of area was reported upto Rs.1000 by about 79 per cent, between 1000 to Rs.2000 by 9 per cent, Rs. 2000 to Rs. 5000 by 10 per cent and only 2 per cent have reported increase above Rs. 5000. In Haryana, the farmers who have reported increase of Rs. 2000 & above are about 30 per cent as compared to 6 per cent in UP. At district level, the increase was reported by the maximum 36 per cent farmers in Sonapat and 27 per cent in Baghpat. These two districts have also shown relatively much higher changes in their cropping pattern. Thus, the changes in cropping pattern, reduction in cost and technical advice in better use of inputs have resulted in increased income, which augurs well with the reforms in extension.

Impact on Dairy

67. The milch animals of sample farmers have increased to 12.5 per cent during 2005-06 to 2007-08 with about 12 per cent in Haryana and 11 per cent in UP. At district level, the maximum increase is revealed in Baghpat at 32 per cent, about 18 per cent in Bareilly, Barabanki and Sonapat and 15 per cent in Saharanpur. Baghpat and Sonapat may be supplying fresh milk to Delhi while Barabanki and Bareilly may be feeding Lucknow. In recent years, the development of private supply chain coupled with extension support from ATMA may have given boost to dairy development in the adjoining area.
68. However, the increase in annual milk per animal is just 3 per cent which indicates that the extension support is yet to make an impact on yield. At district level the maximum increases is in Sonapat at 18per cent followed by Maharajganj (15 per cent) and 8 per cent in Baghpat & Lucknow. The annual average net income as per the broad feed back of sample farmers has increased from Rs. 4045 to Rs. 4967 i.e. about 23 per cent. The income increase in UP is more than double of Haryana which was mainly due to realization of much better prices in a span of two years.

Impact on Meet Producing Activities

69. The poultry birds reared in 2007-08 after ATMA have almost doubled in the districts of Saharanpur, Maharajganj and Aligarh. The number of units increased from 8 to 41, however, more of smaller units have come up instead of big units. The number of sheep has been reduced in the two years period from 12199 to 144. It was mainly in Sirsa which may have some grazing land in the district and adjoining Rajasthan area. Similarly, goat-rearing is no more a commercial activity as the average unit size is less than five goats which may be kept in backyard by the low income people for their own milk/meat requirement.

Impact on Bee-keeping

70. Of the total sample, beehive units were found in 3 districts of UP and one district of Haryana without much change in the number of units and the income per unit. It means that the ATMA programme has not made any headway in this activity though it is linked with horticultural crops.

Impact on fish farming

71. The number of fish ponds increased from 154 to 224 after start of ATMA, though production is not higher in 2007-08 as compared to 2005-06. The value of fish production has increased by almost two times which is mainly due to price effect. It indicates that ATMA has not made any significant impact especially on fish yield.

Increase in overall Income

72. The increase in income from all sources is reported by 27.4 per cent of the sample farmers while the increase in agricultural production was reported by 25 per cent farmers. It indicates that agriculture was the main source of increase in income. At state level, the increase in income is slightly higher (31 per cent) in Haryana as compared to 26 per cent in UP. Across the districts, the maximum (54 per cent) number of farmers reported increase in Sonapat district followed by Baghpat and Bareilly both at 49 per cent and Saharanpur at 25 per cent. Thus, the increase in income at district level is in consonance with other impacts like adoption of allied activities, prominent changes in cropping pattern and increases in yield.
73. A large majority (81.8 per cent) of farmers reported slight increase (up to 10 per cent) in income due to ATMA interventions followed by 17.5 per cent, 0.5 per cent and 0.1 per cent who reported income increases to the tunes of 11-25 per cent, 26-50 per cent and more than 50 per cent, respectively. Thus, it could be concluded that ATMA interventions have started showing impact in terms of income increase. It is worth

mentioning here that any scheme to show impact at income and other long-term indicators needs time.

RECOMMENDATIONS

Based on the findings & conclusions of the study and keeping in view the scope and significance of ATMA Programme aimed at reforming the extension mechanism, the following suggestions and recommendations are made to facilitate a policy review of the scheme at the appropriate levels:

1. Promotion of Farmers' Interest Groups and Farmers' Organisations

Group approach is central to the restructured extension mechanism to make extension more demand-driven with focus on learning and empowerment. The focus need to shift from mere group formation with a target oriented approach to making them an effective channel for both, the dissemination of technology to a large number of small / marginal farmers as well as providing feedback to research and extension. Urgent steps are, therefore, required to promote effective Commodity based Farmers' Interest Groups (CIGs) to fill the gap in extension services at the village level and to make the technology generation/dissemination truly farmer driven and farmer accountable. In order to achieve this end, CIGs need to be organized to function in a well-structured manner instead of the haphazard way in which they exist today. The following aspects could be kept in mind while mobilizing FIGs on commodity lines.

- a) CIGs should be promoted / mobilized for atleast one major commodity.
- b) Each CIG should cover an area of approx. 500 ha.
- c) The groups should cater to the requirement of farmer cultivator for the entire area such as procurement and supply of seeds, farm implements, fertilizers, providing market linkages, post-harvest management, value addition, processing and other extension needs.
- d) All cultivating farmers including tenant farmers should be made eligible to become members of the CIG.
- e) The optimum number of farmers in each group could be in range of 40-50.
- f) The ATMA in each district should engage good and reputed NGOs/ KVKs to mobilize and promote CIGs. Line departments and farmers' organizations such as Kisan Club should be actively involved in mobilization of CIGs.
- g) Each CIG should meet atleast once in a month to discuss the activities of the group and to decide its future course of action.
- h) The forum of FIAC at the block level and the ATMA Governing Board at the district level should monitor the functioning of all CIGs on a periodic basis.

- i) Membership fees may be fixed by the group as decided mutually.
- j) The group shall elect one member as the leader
- k) CIGs at the village level could be federated at the block/mandal level and subsequently at the district level.
- l) CIGs shall maintain proper register, records such as commodity register/ proceedings register, saving register ledger and cash book.
- m) Capacity building / training plan should be devised to cover all FIG members in due course.

2. Women in agriculture

The ATMA framework places strong emphasis on extension support to women farmers. The distribution of women in terms of farm size and education has brought out that most of the women farmers are marginal/landless category with much higher illiteracy, indicating that farming by women may largely be due to compulsion of illiteracy, separation / helplessness etc. However, in the unit of farmer family, women are equally involved in farming operation except ploughing and, therefore, they rarely seem to get a chance to attend any outside training etc. Hence, there is need to recognize them too as farmers. The main difference in occupational distribution of men and women is that animal husbandry especially dairy is taken up more by the women and it should be the focus of training, exposure visits etc. Concerted efforts are called for to promote effective women's groups so as to empower them for technology dissemination, shared learning, collective action and credit & savings activities. Small & marginal women farmer and landless women agricultural labour could be provided skill-based training in latest farm technologies and innovations as well as entrepreneurship development so as to improve their income level and quality of life.

There is need to increase women's access to services by promoting gender-sensitivity, training for extension agents and increasing the number of female extension staff. The following measures may enable extension services to reach out to women farmers:

- policy reorientation that explicitly recognizes women as agricultural extension clientele
- training of men and women extension staff to sensitise the role of women in agriculture, especially dairy
- training women on decision making in the context of farm and live-stock management
- training women farmers in agriculture marketing
- adequate representation of women folk in the training programmes

3. **Promotion of Self Help Groups (SHGs)**

SHGs can play an important role in approaches to devolution as it encourages people's participation and is demand-driven. This institutional innovation has made significant impact in terms of improving income level and standard of living of beneficiaries and empowered the rural poor, particularly the women. Rural poor and landless need to be, therefore, organized into SHGs and encouraged to undertake some income generating activity after gaining experience and exposure to savings and inter-loaning. The extension workers and perhaps, corporates will then find it easier to approach a group of farmers being cost effective too. The assistance of some NGOs with good track record would be very helpful in promotion of SHGs. ATMAs in all the districts should make efforts to promote SHGs, particularly, women SHGs and provide them the needed skills to take up income generation activity in the farm and non-farm sector.

4. **Involvement of farmers in planning and implementation process**

An important element in the ATMA model is the involvement of farmers' organizations in decentralized decision-making, planning, priority-setting, monitoring and evaluation. Though farmers have due representation in the institutional mechanism created under ATMA such as Governing Board and FAC, there is need for greater involvement of farmers in actual planning and implementation of extension programmes and developmental plans at the village level. In order to make the planning process bottom-up in complete sense, the Farmers' Advisory Committee (FAC) needs to play a more proactive role through interaction with farmers' interest groups and farmers' organisations in order to obtain their extension priorities before finalization of BAP.

5. **Research-Extension-Farmer Linkages**

The Research-Extension system should become more demand-driven and responsible to solving farmers' problems. The time lag between technology generation and dissemination needs to be minimized by devising suitable means & mechanisms for continuous flow of knowledge, techniques and technologies from research institutes / universities to KVKs and ultimately to farmers'. There is a need for close interaction between farmers, extension officials and research system in diagnosing the problems of farmers. There is a wide gap between scientific know-how and field levels do-how. This knowledge deficit should be overcome to enhance the productivity and profitability especially of small farms. The farmer-scientist interactions and visit of experts to farmer's fields should be more frequent to facilitate better design of relevant research and enhanced uptake of technology. Further, the responsibilities of managing REF linkages under ATMA could be exclusively given to KVKs.

6. **Training & Capacity Building of extension officials**

A time bound and well-structured HRD plan for each of the ATMA districts needs to be developed to provide capacity building/training to all the field functionaries and stake holders. But the size of this target group being very large and varied in knowledge level, no single institute/agency could handle the training requirement. The involvement of KVKs, extension departments of SAUs and other local level training institutes and local resource persons must, therefore, be increased to supplement the efforts of SAMETI.

7. **Training of Farmers**

Training and acquisition of skills by farmers is an important component of the technology transfer system because of the new practices involved in production. As per feed back of sample participants in these programmes, the utility of exposure visits is reported to be maximum followed by demonstrations and the least being training. Therefore, exposure visits and demonstrations should be given more priority in allocation of funds in view of their utility being more than trainings. Secondly, the participation in these programmes was skewed across districts and it should be made more inclusive across districts on the basis of objective criterion like number of holdings or cultivated area or both with some weightage. While organizing various types of training programmes, focus should be laid on assessing farmers' needs and skills. The training programmes on system based and sustainable technologies such as Integrated Pest Management [IPM] and Integrated Plant Nutrient Management [IPNM] need to be enhanced. Organizing training and taking initiatives for capacity building of farmers towards agricultural marketing should receive due place in the training curriculum. There is need for a direct interface between farmer's and scientists in the training programmes to minimize transmission losses in the communication process.

8. **Sustainability of Extension Services**

Ownership of a programme by the intended target group is always imminent to ensure its sustainability. Though the ATMA scheme mandates that a minimum of 10% contribution should be realized from beneficiaries with respect to beneficiary oriented activities, however, this concept is yet to take shape in real terms. During the field survey, the farmers revealed that they would be willing to pay for farm advisory and other essential services provided the quality of such services were of high standard and also reliable. Thus, considerable scope exists for successful operation of the paid extension services in agriculture if qualitative farm advisory services are provided and timeliness of services is maintained. The small and marginal farmers, however, will be in a position to avail the paid services if they are organised into groups on commodity lines and the payment in borne by the group itself.

9. **Convergence of Extension Activities**

One of the important objectives of the new scheme is to create an integrated or single window extension system. The SREP is a mechanism for ensuring convergence of all activities of extension, the resources for which are being provided under different schemes of Centre / State Governments. However, in actual practice, convergence of resources and schemes at the village level has not yet started in its true sense, as the planning and sources of funds of each department are different. For a real convergence, it is imminent that the funds provided under different schemes of the centre and State Governments are directly transferred to ATMA for implementation at the block/village level with a coordinated approach of all the line departments. Moreover ATMA needs to be well equipped with logistic facilities to utilize the technical officers of departments. Besides, the extension functionaries of all the line departments need to be properly sensitized by ATMA about the advantages of synergy and the approach that should be adopted for creating the desired linkages and integration of all the government schemes for agriculture & allied sectors with the activities of line departments.

10. **Concurrent Monitoring and Impact Evaluation**

An effective monitoring and evaluation mechanism is an essential ingredient for ensuring success of the ATMA programme. Monitoring and Evaluation becomes effective only when there is proper compliance and review mechanism characterized by complete transparency and involvement of each and every stakeholder. Unlike internal monitoring which remains a routine type of supervision, the concurrent evaluation system helps in indicating the path of progress of the project on a periodic basis through the project implementation process and puts the project on right track by facilitating timely corrective measures and bringing about mid-course corrections/interventions. It is, therefore, suggested that the budgetary provisions for concurrent monitoring, evaluation and impact assessment may be suitably enhanced and necessary monitoring formats and guidelines may be devised centrally to ensure strict adherence to concurrent monitoring and impact evaluation of the ATMA programme. It is worthwhile considering participatory monitoring and evaluation by involving all stakeholders in designing indicators for M&E.

11. **Deployment of a dedicated manpower in ATMA Office**

The Project Director of ATMA in his capacity as the Head of the Agriculture Department in the district is already overburdened with multifarious activities under multiple schemes of the Centre/State and hence the desired focus and attention to extension activities in the district is certainly lacking. ATMAs in the district need to be, therefore, strengthened with a dedicated Project Director or an Addl. Project Director to look after extension activities under ATMA with forceful direction, undivided attention and pointed focus. Deployment of a retired senior official from the

Central/State Government with agriculture background or from the research system having requisite administrative skills and leadership qualities could be considered on contract basis. Similarly, competent and suitable technical support staff should also be deployed preferably on contractual basis in each district to give fillip to extension reforms.

12. **Strengthening Extension at Block/Village level**

- 12.1 The Farm Information and Advisory Centres [FIACs], comprising of Block Technology Team [BTT] and Farmers' Advisory Committee [FACs] is envisaged as a platform where the farmers and the extension functionaries from each line department come together and discuss, plan and execute extension programmes at the block level. FIAC is, by design, the single-window delivery mechanism for extension programs within the block. It is, therefore, imperative that the ATMAs in both UP and Haryana take up the task of construction of FIAC buildings in all blocks on priority and equip them with necessary infrastructural facilities viz. computer with Internet facility, audio-visual aids, library etc. so as to demonstrate and facilitate information for the farming community thereby ensuring effective monitoring, coordination and execution of field activities. FIACs in all the blocks should provide farm related information and advisory services such as farm inputs, market access, competitive price of produce, weather information etc. Further, the FIACs within the district may be networked electronically to enable information sharing.
- 12.2 The existing extension mechanism within the districts is suffering from several ills such as excessive workload on agriculture department staff at block level, inadequacy of manpower in line departments, non-technical nature of responsibilities for field level staff, limitations of the field level extension functionaries to address ground level problems, low level of involvement of Farmers' Organizations/FIGs, etc. Hence, there is a strong need to sort out such administrative issues to provide continuity to the scheme. There is need to strengthen and upgrade the FIACs for effective dissemination of technologies among farmers. One of the options that could be explored is to handover the operationalisation of FIACs to KVKs or NGOs. The NGOs selected for the purpose must have a good reputation and standing with competence to undertake the task. NGOs which are already involved in different extension services for the farming community could be selected after assessing their efficiency, manpower and infrastructure etc.
- 12.3 FIACs have a critical role to play in filling up gaps in training and HRD needs of the FIAC members, both officials and farmer members. There is a felt need for a comprehensive capacity building of block level functionaries as well as the FAC members, FIGs and Farmers' Organisations in the blocks in terms of concepts of the project, formation of groups, preparation of block plans, participatory mechanism, conflict resolution, use of IT and technical skill upgradation.

- 12.4 The ATMA framework at the block level must involve Panchayati Raj Institutions particularly, for creating awareness among farmers, selection of beneficiaries for various extension programmes as well actual conduct of training programmes, on-field demonstrations, etc. as already envisaged under the scheme.
- 12.5 The needs of FIACs are diverse and the issues referred to by farmers need immediate redressal. KVKs and Zonal/Regional Research Stations of Agricultural Universities will have to be more responsive to farmer's needs and should play a proactive role by providing timely scientific advice and technical inputs so that the technological dissemination and adoption becomes demand driven. KVKs/ZRSs should work as a continuous resource organization for FIACs and prepare a database of progressive farmers for access by any FIAC, extension worker or farmer to enable exchange and sharing of technological innovations.
- 12.6 The Convener of the Block Technology Team who is invariably the Agriculture Officer in the Block both in UP and Haryana is under tremendous pressure due to their involvement in multiple schemes/programmes of the centre and the State Government. In the process, the extension activities at the block level seem to be not getting the desired focus and attention. In order to actuate the extension activities in the block level and to make it farmer driven and accountable as envisaged under ATMA, the mechanism at the block level i.e. FIAC should have its own dedicated staff for effectively undertaking village level extension activities and to bring about synergy among all the line departments. For this purpose, the ATMAs should be allowed to recruit technical specialists and field functionaries (Krishi Sainik, Krishi Mitra, Krishi Sangathan or such other nomenclature) on contractual basis for providing technical support to progressive farmers on the model of Maharashtra and some other States. The technical experts would enhance the capacity of progressive farmers for providing extension support with a group approach i.e. group of farmers producing the same commodity.
13. **Strategic Research & Extension Plan (SREP)**
- 13.1 SREP exercise was initiated in all the sample districts during 2005-06 immediately after launch of the scheme and the document was commissioned mostly around February-May 2006. It is almost four years since then and there has been virtually no review and updation of this vital document. It is, therefore, felt that the SREP should be invariably reviewed and updated after every three-year period to keep pace with the changes & times. The review and updation could be facilitated by KVK with the support of SAU and other concerned agencies.
- 13.2 In order to create awareness among the farmers and other stakeholders about the significance of SREP, it is necessary to launch a wide publicity campaign by the ATMA body at the district level with active participation and involvement of all the line departments, KVKs, SAUs, Farmers' Organisations/FIGs, Corporates and NGOs.

13.3 The SREP guidelines should be revised to comprehensively cover planning, operationalization and true convergence/integration of ATMA with other schemes of centre/State Governments at the block/village level. The SREP document may also contain best practices and success stories from the districts as also lessons drawn therefrom.

14. **Farm School / Farmers' Field School**

14.1 Farm School is an important extension tool for transfer of technologies to farmers in a participatory mode. Though ATMAs in the sample districts have made efforts to promote Farm Schools, the concept is yet to take a real shape since most of the progressive / outstanding farmers who had set up such schools in their farm fields with great enthusiasm during the first year were not inclined to continue the school in the following year reportedly on the ground that the financial assistance under the scheme was available only for the first year of activity and not thereafter. In the circumstances, it was observed that the farmers who had set up farms schools in a particular year had discontinued the school in the next year and the assistance under ATMA was being made available to a fresh set of farmers in the next year. Another major drawback noticed during field survey was that the farm schools set up under ATMA were not well-structured and were functioning in a hap-hazard manner.

14.2 It is, therefore, proposed that the Farm Schools under the ATMA may be realigned and restructured on the pattern of Farmers' Field Schools set up under the Technology Mission on Cotton (TMC) and National Food Security Mission (NFSM). The Farm Schools under ATMA could be run on the following broad parameters:-

- i) FFS should be structured for the whole crop season in the field. In other words, it should be a season long training programme right from the pre-sowing stage upto post-harvesting. The total duration of the training sessions will, therefore, vary according to crop and the training module.
- ii) One training session may be held every week i.e. only one day in a week will be fixed for training (the day could be decided by farmers mutually keeping in view the local conditions). The duration of each training session could be four hours, preferably held in the morning.
- iii) One FFS should be set up for every 1000 ha. of specified crop area.
- iv) The demonstration field should be treated like a field laboratory to promote farmers' research and experimentation. The Farm School shall be fully field oriented, participatory and discovery based with utmost focus on hands-on practice i.e. learning by doing.
- v) Training should be flexible and non-lecture based with more emphasis on observation, analysis, discussion and debate.

- vi) Selection of farmers should be made invariably by Farmers' Advisory Committee (FAC).
- vii) The number of participants in each training programme shall be in the range of 25-30.
- viii) The training module should broadly comprise of various aspects of crop production and crop protection technologies covering land situation, soil, seed treatment, water management, INM, IPM, agricultural implements & P.P equipments, spray solution, weeds & control, fertilizer application, bio-fertilizers, yield assessment, time of harvest, post harvest technologies, value addition, processing, etc.
- ix) The training sessions shall also include communication skills, skills in identification & problem solving, leadership qualities, etc.
- x) The Facilitators could be Trained Progressive Farmers, Experts from State Department of Agriculture, SAUs, KVKs or NGOs.
- xi) A one-week Orientation training should be provided to Facilitators including Farmer Facilitators at the Apex Training Institutions (i.e. SAMETI) covering various aspects of farm schools

15. **Involvement of Voluntary Sector**

The voluntary sector can play a pioneering role in introducing group-based and participatory extension methods. The assistance of some NGOs with good track record would be very helpful in the promotion of multi-agency extension strategies through mobilization of farmers and capacity building of Farmers' Interest Groups. The input dealers being in closer proximity to farmers in villages can also be gainfully engaged in activities related to marketing and providing backward & forward linkages apart from input supply with the objective of creating self-reliant mechanisms.

16. **Involvement of KVKs / SAUs**

The ATMA model envisages a proactive role for KVKs in operationalizing the scheme in the district. The research priorities of KVK are expected to be fully aligned with and made sensitive to Steps at the District level. The field survey has, however, revealed that the ATMA structure at the district level has failed to utilize the instrument of KVK to its full potential. KVKs in each district should be given complete responsibility for conducting farmer-scientist meets, arranging Goshties and managing the farm school. There was a felt need for providing greater autonomy and flexibility to KVKs for drawing out extension programmes in the district keeping in view the local needs and priorities so as to ensure proper integration & synergy between the ATMA body at the district level and KVKs. Agricultural University owned KVKs should also have the authority to receive funds from any agency including State Government directly on their account instead of the same being routed through the Comptroller of the

respective Universities, which appears to be cumbersome and time consuming. KVKs may well be utilized for training of extension functionaries, progressive farmers and leaders of CIGs based on training needs emerging from SREP, in addition to their other extension activities to create awareness on various improved farm technologies. Besides, the ATMA structure at the district level should utilize the services of KVKs in selection of site as well as varieties to be demonstrated through Folds. Similarly, on completion of Folds, its performance should be assessed jointly by KVK and ATMA. Some of the technical programmes of KVKs could also be implemented through BTT/FAC. Thus, the linkage between ATMA and KVK at district level and SAU and SAMETI at State level needs to be strengthened so as to meet the multifarious demands of the farming community.

17. **Public-Private Partnership (PPP)**

The restructured mechanism in the form of ATMA envisages a major thrust in promoting private sector involvement in providing need-based extension service at grass root level. The Farmers' Interest Groups (FIGs) formed at grass root level needs to be linked with the private sector through contract farming. ATMA should facilitate a formal contract agreement between FIGs and corporates including quality specifications, volume, price and other production and post-harvest requirements. PDs should make conscious efforts to provide technical inputs to FIGs through the agripreneurs trained under ACABC scheme and also facilitate linkages of the farmers' groups with financial institutions for micro-credit in line with SREP strategies. ATMA should aim at improved farm income by strengthening market linkages such as linking primary producers to processors, promotion of value addition at the local level and linking producer groups to other institutions in addition to providing technical support and credit. The time has come to expand the scope of extension beyond the conventional role of technology dissemination by providing a wide range of support to farmers. PPP should be encouraged to take increasing responsibility of handling grain marketing. The public infrastructure like transportation and storage could be shared with the private sector to make the partnership an effective marketing institution to facilitate more information, fairer trading, better prices and greater transparency in its functioning. Thus, PPP in various modes can provide synergistic approach in the extension efforts.

In some districts, a number of private organizations were found working in isolation providing diverse services. The ATMA structure at the district level must have an inventory of such private sector extension providers and also make efforts to forge an alliance with them.

18. General/Farm Related

- 18.1 Farmers are required to be sensitized on the use of [i] Light traps, [ii] Bio-pesticides [iii] Rhizobium culture [iv] PSB culture [v] Azotobactor and, [vi] Bluegreen algae, on a regular basis, as the same is not much in use.
- 18.2 Procedure for supply of soil test reports, sample checking reports for micro nutrients may be streamlined to ensure that the reports are supplied to the farmers well in time to enable them to take timely decision on the use of needed dose of fertilizers, etc. There is also a felt need to sensitize farmers on the need for water quality checking. The setting up of test labs at convenient places perhaps also needs a re-look.
- 18.3 There are still many farmers who are not using the recommended doses of NPK. The pesticides use is showing increasing trend, which should be a cause of concern. More efforts are required to sensitize farmers on the use of proper doses of fertilizers and less use of pesticides for the sake of sustainable agriculture and crop productivity.
- 18.4 Organic farming is cost effective and good for soil health. The concept of the compost farming is, however, in its nascent stage in the study districts. ATMA offers a good opportunity to expose farmers to the making and using of organic fertilizer by imparting training and demonstrations on its use. Farmers should be taken on exposure visits to see the practitioners of organic farming in other States to gain knowledge and practice.
- 18.5 The Farmer Advisory Committee (FAC) being a vital arm in the bottom-up extension strategy under the ATMA model should meet preferably on a monthly basis to discuss and plan the extension priorities as also to monitor the execution of block level programmes as determined in the BAP. During the interface of the field study team with the members of FAC in the sample blocks, a large majority of them felt that no separate meetings of FAC had been held since the member farmers in the block are spread across villages far and wide and there was no attraction to travel all the way for a meeting leaving their vocation, in the absence of any allowance or incentive. They were, however, attending the joint meetings of FIAC comprising of BTT and FAC which are also not held as envisaged under the scheme but are infact convened usually once during each crop season. It is, therefore, suggested that the members of FAC may be allowed some fixed allowance or incentive for attending the meetings of FAC to encourage participation and involvement of all members in extension activities.
- 18.6 Keeping in view the technological advancements, it is imperative that the ATMAs in all the districts are networked electronically so as to foster information sharing particularly on the success stories, best practices, research and extension issues, application of innovative technologies & strategies, etc. Besides, all the ATMAs in

the district should have their own website to share information regarding their activities to the outside world.

- 18.7 ATMAs should play a critical role in reducing post harvest losses that are estimated to be about 25 per cent of country's total farm harvest. Though some attempts have been made for promotion of cold storage for reducing the post harvest losses, marketing still appears to be a major problem confronting the farmers. Further, processing of fruits & vegetables for value addition is still not effective in the sampled districts. Intensive efforts are required to be made for setting up processing units in the districts preferably with active involvement of NGOs and Corporates which would not only minimize the post harvest losses but also aid in value addition thereby leading to employment generation and increased livelihood security in rural areas. The Governing Board could also consider allocating funds to KVKs for setting up a small processing unit in their centre to serve as a model demonstration unit for the benefit of farming community in the district.

CONCLUDING OBSERVATIONS

The Agricultural Technology Management Agency [ATMA] programme aims to increase farmers' participation in programme planning and resource allocation especially at the block level and to increase accountability of stakeholders. It also recognizes a strong need to integrate various sources of innovations and extension mechanisms in such a manner that they provide synergetic effect in terms of need based technology and information delivery in an integrated manner.

Evaluation

The extension reforms envisaged under ATMA programme is slowly and gradually picking up in both the States of Uttar Pradesh and Haryana. While the institutional mechanism created at the district level has started functioning after the initial teething problems, the block level operations have not moved at the same pace in many of the sampled districts mainly due to shortage of staff at the block level and also the level of their skill. They require comprehensive capacity building in terms of concepts of the project, formation of groups, preparation of block action plans, participatory mechanism and technical skill-upgradation. All ATMAs in the sampled districts have made reasonable progress on diversification and intensification of different farming systems. It will take some more time to establish firm roots, particularly in view of the huge complexities in extension mechanism and diverse agencies involved in the process. The line departments, KVKs and research institutes are cooperating but they are yet to be involved systematically. The block level institutions viz. BTT & FAC have started playing some role in planning & execution of developmental plans at the village level though the bottom-up participatory planning, single window concepts and convergence/dovetailing of schemes in the true sense of the term, are yet to take an institutional shape. The line departments are making efforts to mobilize commodity based Farmers' Interest Groups [FIGs] but most of the groups formed are dormant and non-

functional. FIGs/CIGs which have initiated some activities are yet to become self-propelling institutions to make use of the extension net work. There is a need to involve NGOs in forming effective groups of farmers around commodity lines. BTTs and FACs need to play a more active role in preparation of block action plans by involving the FIGs, Farmers' Organisations and SHGs at the village level. The concept of farm schools as a means to disseminate information and technology through farmer-farmer extension needs complete restructuring. A few corporates have entered into the rural market in commodities like soyabean, vegetables and fruits and are also providing farm advisory and other services such as soil testing facility, input supply, training & skill upgradation etc. Thus, the process of public-private partnership has begun, but it will still take some more time for a concrete shape to emerge. The process of technology dissemination through various institutional arrangements such as training, demonstrations, exposure visits, field days, kisan goshties, etc. has certainly shown some improvement over the pre-ATMA position. Farmers have found high utility and relevance of knowledge gained through participation in these programmes. A number of innovative approaches have been adopted for dissemination of technology to the farmers. Farmer-led extension and concept of establishing Farmers School in each block is progressing but in a slow pace as only 10 per cent farmers are aware of it. The research, extension and farmers linkage through meeting/goshties with scientists has started but the frequency of such meets needs to be enhanced i.e. at least one interactive meet during each rabi and kharif season.

Impact on reforming extension system

The first & foremost objective of ATMA i.e. dissemination of new farm information and technologies / practices was realized by about 52 per cent farmers though the feedback varied widely across the districts from 17 to 77 per cent. Skill upgradation has been reported by an overall 51 per cent of the sampled farmers, varying from a minimum 20 per cent to the maximum 70 per cent. The adoption of new knowledge in fields was reported by 34 per cent, varying from a minimum about 13 per cent to the maximum 61 per cent. The removal of inhibitions and scientific explanation about the existing practices like summer ploughing, timely sowing and watering was felt by about 33 per cent. Across the districts, most of the above impacts were on higher side in Bareilly, Baghpat and Sonapat and on lower side in the eastern and central districts of Uttar Pradesh. However, as much as 29 per cent of the sampled farmers did not feel any change during the last 3 years while 26 per cent of the respondents rated ATMA extension programme as poor. ATMA extension was rated as 'very good' / 'good' by 45 per cent of the sampled farmers.

Economic Impact of improved extension

The study has brought out that farmers changed their cropping pattern largely by shifting of acreage from barley, paddy, bajra, til and sugarcane crops to the crops of wheat, R & M, cotton, pulses, vegetables, fodder and horticulture. Increase in fodder acreage was 38 per cent in UP and 2 per cent in Haryana and its economics were linked with increasing dairy farming. The yield increase was relatively higher for the crops which have recorded increase

in their area. Linking the two, it can be inferred that increase in yield has positively influenced changes in area under individual crops. The districts which have recorded prominent changes in cropping pattern are Sonapat (Haryana), Baghpat (UP), Saharanpur (UP) which are in the vicinity of major consumption centers like Delhi and Dehradun. Therefore, the shift may be partly due to increase in yield (ATMA impact) and partly due to other reasons like procurement of better prices in view of nearness to main urban consumption centres. Besides the impact on yield, about 15 per cent have reported some saving in their cost of production. The combined impact of changes in cropping pattern due to yield and reduction in cost of production has resulted in income increase of Rs.2500 per ha to approx. 79 per cent farmers, though only 25 per cent owed it to ATMA. At district level, the increase was reported by maximum farmers in Sonapat and Baghpat. These two districts have also shown relatively much higher changes in their cropping pattern, increase in yield and dairy activity which again substantiates that urbanization has also played an important role in this process of change.

Thus, it can well be appreciated that the response to change is normally slow and 3-4 year period for any programme is certainly not sufficient enough to make any significant dent in the change process. The implementation of ATMA programme requires change of mindset of different stakeholders. It is quite natural to take some time before full potential of this programme is realized. In the course of time, the comprehensive institutional and operational reforms undertaken under ATMA programme is expected to show a discernible impact in improving the quality & type of technologies being disseminated by the extension system with due emphasis on diversification and intensification of different farming systems. In the ultimate analysis, it should enable the Research-Extension system to become more demand-driven and responsive to solving farmers' problems besides increasing the financial sustainability of the public extension system and developing new partnerships with corporates and NGOs.