Innovative approaches for sustainable productivity among tribal families of East Godavari district


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The effectiveness and efficiency of the agricultural extension system in India can be improved by motivating and mobilizing the rural and tribal folk towards sustainable productivity. It requires efficient and innovative approaches in order to organize and strengthen the farming community in an effective way for better participation, adoption and empowerment. A sample of 500 tribal families were selected on stratified random sampling procedure from four village panchayats and seven hamlets based on purposive random sampling method. A socio-economic survey was carried out by using PRA techniques to analyze the tribal scenario of East Godavari district. Major problems were identified and agro-based interventions were proposed suitable for the selected tribal area. After conducting an externally funded extension based DBT project for a period of three years (2009 to 2012) and implementing the interventions in tribal area of East Godavari district, it was found that there is a great scope to suggest suitable innovative and appropriate approaches for tribal and rural population. Suitable innovative extension strategies were suggested for bringing a desirable change in improving the livelihood of rural and tribal societies towards productivity and sustainability.

Key words: Participatory approach, extension research linkages, capacity building, information technology, resource mobilization.

INTRODUCTION

The present agricultural extension system in India can be empowered by strengthening the rural and tribal folk by mainstreaming them by technological revolution. The present departmental mode of organization and management public systems in agricultural research and extension need to be transformed in an innovation system framework. This implies demolishing dichotomies like research/ extension, plan/ non-plan, centre/ state, public/private, agriculture/rural, and so on. More effective mechanisms must be identified and developed to internalize stakeholder involvement in decision-making and improve partnerships across the board. There is need to shift from a hierarchical and linear technology generation-diffusion model to a non-linear and holistic learning mode. Bureaucratic and financial norms, of functioning and accountability processes have proven inadequate for meeting scientific goals. These need to be replaced by more autonomous, flexible and performance-centered processes and management. The extension approaches should aim at self training and group learning based on the real life situation. A substantial methodology is needed to upgrade technical, managerial and organizational skills of the human resource to prepare the human capital to respond to emerging challenges in the phase of increasing competition and specification. Extension approach should also change according to the developmental phases, strategies adopted and changing needs of the clientele.

The main objective of the study is to ascertain suitable extension approaches for sustainable productivity of tribal
and rural households. Various innovative extension approaches were suggested by Hansra et al. (2005) and some of them were found to be effective while implementing the interventions in an externally funded project implemented by CTRI.

METHODOLOGY

A sample of 500 tribal families in general and 100 farmers in specific were selected on stratified random sampling procedure from four village Panchayats and seven hamlets viz., Thallapalem, Daragudem, Bandapalli, Pedageddada, Bhupathipalem, Cheruvupalem, Gandhipuram of Rampachodavaram mandal, East Godavari district were selected based on purposive multistage random sampling method. A socio-economic survey was carried out by using PRA techniques to analyze the tribal scenario of East Godavari District. Major problems were identified and agro-based interventions were proposed suitable for the selected tribal area.

RESULTS AND DISCUSSION

Today, the transfer of technology model is often viewed as the antithesis of participatory research. However, this is often not the case. In fact, much of the present participatory practices can still be classified as an expansion of the transfer of technology model because information is obtained from farmers and incorporated into scientific research. Participatory methods are used to meet farmers’ needs and to adapt technologies to location-specific circumstances at a relatively late stage of the research process. A core team of scientists identified the aforesaid villages in Rampachodavaram Mandal, East Godavari district considering the majority of marginal farmers, cultivating podu. The information about agro eco-system and socio-economic conditions in the villages are obtained through Participatory Rural Appraisal (PRA) techniques by a multi disciplinary team of scientists. The PRA techniques such as trend analysis, seasonal analysis, venn diagram, matrix ranking, livelihood analysis and wealth ranking were used (Suman et al., 2010). There is vast difference between tribal and rural farm population. Identification of problems, interaction and recommendation of interventions has taken a long time because of primitive nature, extensive psycho-social barriers, ignorance, illiteracy and lack of technological awareness of the tribal poor. Low productivity in field crops, low economic net returns in crops, drudgery in agro-based activities. Non utilization of natural resources, low income from alternative sources of livelihood, poor health and nutritional status, occupational health hazards are other peculiar features found in the tribal population (Suman et al., 2010).

After identifying the problems viz., in the tribal area, a project is proposed based on the principle of technology dissemination process with bottom up approach. The project entitled ‘Empowerment of Tribals of East Godavari district through Agro-ecological Conservation and Biotechnological Approaches’ was duly approved by the Department of Biotechnology (DBT), New Delhi. After implementing the above externally funded extension based DBT project for a period of three years (2009 to 2012) and implementing the interventions in Tribal area of East Godavari District, it was found that there is a great scope to suggest suitable innovative and appropriate approaches for tribal and rural population (Suman et al., 2010). Innovative extension approaches are needed to help farmers to access information, innovate and strengthen their capacities and to solve the present agro-based problems in an effective way. Hence, suitable innovative extension strategies were suggested for bringing a desirable change in improving the livelihood of rural and tribal societies towards productivity and sustainability.

1. Improving extension research linkages: The reforms in agricultural extension on the aspects of research extension linkages include promotion of direct interface between farmers and scientists to minimize transmission losses. Activating existing interface mechanism and institutional linkages through various forum and research prioritization based on strategic research and extension plans are the means suggested for improving research extension linkages, example, Field School Approach. The extension approaches not only focus at individual, but they should also meet the requirements by ‘group centered approach’ and ‘face-to-face interaction approaches’ where there will be discussions between extension stakeholders, farmers and scientists.

The proposed intervention strategies in the project helped in increasing the productivity of field crops. This was possible by introducing and intensifying the available technologies. This was possible through certain innovative approaches viz, field school approach’, ‘family centered approach’. The field school approach was possible where the farmers were trained by seeing and believing. The stem borer control and ‘T’ mosquito control in cashew orchards (monocrotophos at 0.05% at flushing stage, endosulphon at 0.05% at flowering stage and carbaryl at 0.1% at fruiting stage) was possible because the problems were identified and the remedial measures were proposed on the farm itself by training all the neighboring farmers together (Suman et al., 2010). Rodents and leaf blight in paddy were controlled with the help of these methods.

The group centered approach and face to face interaction with the scientists was successful while imparting training and management strategies. These approaches were found to be better after completion of training and the farmers were encouraged to elicit questions after completion of long duration training programmes. This has increased the confidence level and reduced the social barriers of the tribal farmers.

2. Capacity building of extension functionaries: Various measures are suggested for capacity building of extension functionaries include formulation of HRD policy by states to avail central support of HRD and formulation
of a long term training plan for extension functionaries. Such training plan covers two major aspects, namely foundation courses and professional courses. The foundation courses may cover areas like need assessment technique, group formation, development of entrepreneurial skills Agri-business, Agri-business management, WTO and its implication, marketing of agricultural production, post-harvest management, management of common property resources, use of different type of media, communication, etc. The other steps suggested for capacity building are volunteer farmer extension programmes, rural resource centres and market information systems for underutilized tree products.

The capacity building of grass root level workers viz., VAOs, NGOs, gopala mitras, anganwadi teachers, agricultural officers were trained in the good agricultural practices. Both individual and group capacity building programmes were organized for the local grass root level extension functionaries.

3. Empowerment of farmers: In order to project farmers as major stakeholders of the extension system, it was suggested to involve farmers in setting extension system agenda for implementation of extension programmes through farmers user groups. Interaction and integration between government agencies, organizations for extension services and farmers will go a long way in solving many of the problems. Acquisition of skills by farmers through training and other programmes also form integral component for empowerment of farmers. Interactive learning replaces transfer of technology as a principal function of the extension systems, for example ‘field school approach’ has helped in transferring many of the skills to the farmers. Implementation of extension programmes by ‘family centered approach’, by keeping the family as basic unit of the village was identified as the best method to teach certain skills (management of cattle).

The main objective of the project is to bring desirable and qualitative changes in the living standard of the targeted group. The family centered approach was also fruitful while imparting cattle management and backyard poultry keeping. These approaches were found to be better when training was offered to the female counterparts along with the farmers as they are the bread winners and part and parcel of the tribal family system. The selected farmers were empowered in simple need based technologies, viz., seed treatment, green manuring, vermin composting, soil test based fertilizer application, IPM in cashew etc., for improving the knowledge, skills and abilities of the farmers (Suman et al., 2010).

4. Main streaming of women in agriculture: If women are empowered, entire family gets the benefits of empowerment either economic or social. Special programmes for improving access to extension, training and knowledge to enhance abilities of rural and tribal women farmers are the important measures for livelihood security. Different approaches viz., first woman as model (focus targeted at woman in the family), market led model (entrepreneurial abilities), bottom up model (allocation of resources at grass root level viz., woman), cyclic model (involving women clientele, extension workers and researchers by two way communication process) are some of the efficient innovative extension approaches emerged after implementing the proposed interventions in the project. ‘Master trainer approach’, identifying and training the skillful persons and keeping them as master trainers to train others in villages has helped to solve many problems at grass root level.

One of the objectives of the project is to address the gender specific issues for increased efficiency and to improve the socio economic status of the tribal women. The tribal women were empowered through homestead units like value addition of minor forest produce, fruit and vegetable preservation. They were also provided technical and marketing assistance along with skill up gradation. This has enriched the family income of tribal farm families during lean period. Certain drudgery reducing implements were also introduced in order to improve the farm efficiency of tribal women. Master trainers from Krishi Vgyan Kendra, Kalavacherla, CTRI were identified as trainers for imparting training for the tribal women in tribal hamlets. E.g, Adda leaf plate unit at Devarapalle village, Hill broom unit at Pedageddada.

5. Use of information technology: Increased use of information technology in agricultural extension has been advocated for developing knowledge and skills among farming community. Access to information and improved communication is a crucial requirement when applied to rural and tribal areas can improve communication and disseminate information. Promotion of T.V. Channels, telephone services, video-conferencing, cell phones, digital cameras, Call Center Services, ‘e-choupal’ (tobacco farmers’ portal, ITC-CTRI), internet facilities, CYBER extension (E-mail, FTP, Usenet News groups, TelNet, World Wide Web, Social Network) etc., for varied farming groups at various phases is required to achieve information access for improved communication technology. Information technology can also be effectively be applied in agricultural marketing sector.

The tribal families were encouraged to see the television programmes which have increased the knowledge, abilities and skills of the farmers. The farmers were taught to give telephone messages and encouraged to discuss the field problems on telephone with the state department officials, agricultural officers and scientists. This helped them to reduce their social barriers. They were provided a monthly magazine (local language) for their community hall of Pedageddada village for giving more information.

6. Financial sustainability and resource mobilization: Realizing that public funded extension will continue to play a predominant role in technology dissemination, cost
effective mechanisms for extension services has been suggested. The steps suggested for financial sustainability include (i) efficient use of available resources (ii) privatization of agro-services (iii) realistic cost of recovery of agro-services (iv) co-financing of public extension by farmers and (v) initiating new financial system. Timely input supply, quality seed supply, value addition, micro-financing, insurance, marketability with good decision making ability, accountability, minimum prices for commodities will certainly help the farmers in financial sustainability.

Financial sustainability and resource mobilization is a fundamental step for achieving livelihood security. That was the main skeleton of the present project which has increased the productivity (Suman et al., 2013). But by integration of two three components viz., timely input supply, quality seed supply, value addition, homestead units have helped for the tribal empowerment in the project.

7. Integration of extension elements: The extension system with the involvement of Government agencies, NGOs, farmers organizations, farmers clubs, private sector agencies, para workers, etc is going to be more effective and dynamic. The agricultural extension system will have to transform itself with the capacity buildings to meet the challenges arising out of farming system approach. The transfer of technology system is likely to undergo radical reforms as the farmers need a wide range of services on aspects like marketing, credit insurance, infrastructure (including cold-chains), entrepreneurship, etc. it is possible only through changes in the institutional and organizational set up of our extension system. The extension system has to be sent on a 'system management' mode, since the goal of extension has to make a shift from 'technology dissemination' to 'system management'. Many of the Govt. welfare programmes are planned independently by different departments and hence there is possibility of dilution. All the programmes should be planned in an integrated way so as to focus the welfare programme and targeted groups during particular period of time.

The project objectives were achieved by integrating the other departments which are working for the targeted group in the similar fashion. The welfare programmes were carefully implemented and integrated with the other departments viz., Integrated Tribal Development Agency(ITDA) and state departments to have a focus on the specific targeted people. Exposure visits to Krishi Vigyan Kendra (CTRI) and regional research stations (RARS, Maruteru, AP) has helped the extension workers and farmers helped to develop the rapport with the scientists.

8. Agri-prenuership development: As high competitiveness is a priority in the globalized world and much of it, is underpinned by information revolution, increasingly knowledge will substitute monetary inputs. Technology packages largely will become knowledge-based. The existing agricultural technology development and transfer system in India, including the human resources and infrastructures, are outmoded, causing serious technology gaps and slippage. The extension and technology transfer system must be updated and the huge urban-rural digital divide must be narrowed. A crash training and skill development programme and establishment programme and establishment of rural information centers must assume high priority. Such programmes would particularly be attractive to the rural youth, who are mostly unemployed or underemployed. Farmers should be trained in developing entrepreneurship, capacity to take initiatives in new ventures; business acumen, marketing skills and competence to infuse primary processing activities (grading and labeling) so that its produce earns maximum price and profitability.

The farm women of Thallapalem and Pedageddada were trained in certain agri-prenierual subsidiary activities viz., kitchen gardening, poultry and value addition to the minor forest produce during their lean (offseason) period. Through these activities, the skills of the tribal women were upgraded. This has helped the tribal families to enhance their family income (Suman et al., 2013).

9. Introduction of para-professional/vocational courses: In agriculture and allied areas, self-employed graduates should be supported at grass root level in Agri-business and Agri clinics. This must from part of our strategy for employment oriented agricultural education. Such para-professionals should have the advantage of fluency and flare to communicate in local language; base the line information on village life, livelihood means, soils water, flora and fauna (domestic and wild), traditional practices and beliefs and modern knowledge and skills on diverse crops, livestock including their varieties and breeds, agronomic practices, methods of soil and water conservation and testing; necessary information on ecological principles in managing diverse natural resources, practical exposure to general field problems and experience to administer prescribed treatments.

Some of the vocational training programmes were also offered in milch animal management, poultry management(vaccination), horticulture management (grafting techniques) good agricultural practices, kitchen gardening (bed preparation, manure making) etc, were imparted for the farm youth which has resulted in bringing awareness in the aforesaid technologies. This has motivated the youth in gaining additional family income apart from the improvement of abilities. This has improved the self confidence in the tribal youth.

10. Leadership development: Leadership and team working, managerial qualities, computer literacy to update technical management and commercial knowledge and national policies and global happenings to offer latest and viable information on and solutions for problems faced by farming community must be framed at three levels viz., village level, mandal level and district level. ‘Satellite
farmer approach’ in which identification of key and important farmers and diffusion of technology by keeping him as a model/central farmer will facilitate easy transfer of technology will help in diffusion of knowledge in an effective and excellent way. This approach was followed during planning of on farm trials. During planning fundamental concepts like seed village concept, some of the leaders were identified by satellite approach. The farmer himself identifies the similar type of farmers facing the similar type of problems. Thus, the secondary group of identified farmers was clustered under the identified primary key farmers. This made the implementation of interventions very easier. Thus, through the seed village concept the seed was multiplied in the tribal villages easier. Various extension activities viz., kisan mela, field days, diagnostic visits, demonstrations and exposure visits were also organized to bring awareness in the tribal community with focused leadership.

CONCLUSIONS AND RECOMMENDATIONS

The innovative mode of extension approaches involve capacity building of extension functionaries, improving extension research linkages, empowering farmers, main streaming of women in agriculture, financial sustainability. The extension system with involvement of Government agencies, NGOs, farmers’ organizations, private sector agencies, para-extension workers, etc., is going to be more effective and dynamic. The agricultural extension system will have to transform itself with the capacity building to meet the challenges arising in rural and tribal situations by utilizing the resources effectively. The transfer of technology system is likely to undergo radical reforms as the farmers need a wide range of services on aspects like marketing, credit insurance, infrastructure (including cold-chains), entrepreneurship, etc. It is possible only through changes in the institutional and organizational set up of our extension system by adopting important extension strategies. The model innovative approaches for sustainable productivity in rural and tribal areas are illustrated in Figure 1. The extension system has to be sent on a ‘system management’ mode, since the goal of extension has to make a shift from ‘technology dissemination’ to ‘system management’. Hence, it is concluded that the present innovative extension approaches that were followed in the project interventions has brought a desirable change in sustainable productivity and livelihood security among tribal societies.
Thus, the approaches used in the present project are highly useful in replicating the studies with similar primitive groups.

REFERENCES


http://jrprogagri.wordpress.com/full-length-research-articles/april-2010-issue-vol-1/