



Agricultural Extension and Advisory Systems in Tamil Nadu

Saravanan Raj and A Vincent

Status of Agriculture in Tamil Nadu

With the highest productivity in food grain (Rice-3191 Kg/ha), coarse cereals (Maize-5360 Kg/ha; Pearl millet-2881 Kg/ha), oilseeds (2294 Kg/ha) and coconut (10236 nuts/ha), the state is the major trendsetter in agriculture, nationally. Also, it has a significant share of the production of food grain (4.73 %) and horticultural crops (7 %) to the total food and horticultural basket, respectively in the country. The state has achieved its central stage in agriculture with the reception of the Krishi Karman Award (four times between 2011-12 to 2015-16) from the Government of India for its record in food grain production. In livestock as well, it is a major milk, meat and egg producer in the country with the share of 4.39 %, 7.88% and 18.29 %, respectively to the total output value. However, reduction in net sown area (from 47.20 to 37.08%), the declining contribution of agricultural GDP to the total SGDP (from 15 to 7%), increase in fallow lands (from 17.63 to 21%), increase in migration of farm families (8.67 lakh farmers left agriculture recently), subsidy system of extension, poor quality of farm/livestock inputs and depriving socio-economic status of farming communities call for more responsive and competent extension systems by tailoring the best fit advice methods and information tools on technology.

The number of operational landholders in the State is 79.38 lakhs who are operating cultivable land of 59.73 lakh hectare. Small and Marginal holders account for 93% of the total holdings and operating 62% of the area occupied. The remaining 38% of the total landholdings are occupied by 7% of medium and big farmers. The average size of landholding is around 0.75 ha, it is slightly lower than the national average (1.08 ha). Around 64 % of the farmlands are irrigated by wells and borewells, followed by 22 % of the lands are irrigated by canals, 14% of the lands from tanks and a negligible percent (0.08%) by other sources.

Agricultural extension and advisory systems

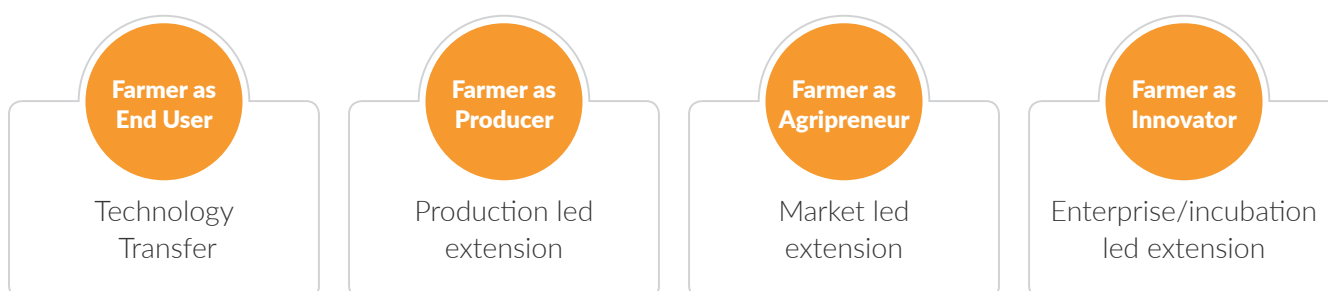
Agricultural extension systems are broad-based (pluralism) in today's context of Tamil Nadu. Also, it is moving from a market-led extension to a agripreneurship/enterprise based extension. The major actors of these systems include public, private and third sectors with a varying role in the entire supply chain of agriculture. The extension services of public sectors are to some extent complemented (or replaced) in certain areas of agriculture such as organic farming by the private players, along with NGOs, CSOs and other community organisations at the grass root levels. However, the purpose of extension systems should not terminate with the transfer/reinforcement of knowledge to farmers, rather it should accommodate the local knowledge (innovations) of each farmer with science based agricultural innovations at a larger perspective.

Public extension

By and large, the focus of the public extension is tipping towards top down approach with a maximum emphasis on the improvement of productivity and income, which, however, contradicts the location specific information needs of the farming community and seldom commensurate with farm-specific challenges that the farmers face today.

Innovative extension advisory services

The state has pioneered a few extension models to remain relevant to the changing context of agriculture and challenges. The knowledge-intensive production/post-harvest technologies (System of Rice Intensification (SRI), Integrated Pest Management (IPM), Sustainable Sugarcane Initiatives (SSI), Integrated Crop Management (ICM), precision farming, value addition technologies among others), the cyber extension models (Uzhavan Mobile App, Farm Crop Management System/FCMS, Micro Irrigation Management Information System (MIMIS-Horticulture) and market extension mechanisms (e-NAM) aim at increasing the access of each farmer to extension supports. The Collective Farming approach conceptualised by the state, recently, seeks to group around 40 lakh farmers (50% of the total farmers) into farmers collectives. It intends to increase the farm power by providing 5 lakhs corpus funds to each group (FPG) for purchasing crop-specific farm machinery. This will enhance the access of the group members (especially smallholders) to the need based farm machinery (along with skill required for operating) at low rent rate. Also, decentralised extension services such as Mini (also mobile) Soil Testing Lab, village-level Custom Hiring centres, Amma Mobile Medical Ambulance (AMMA) etc., support farmers for ensuring crop/livestock quality (marketability) and minimising the cost of production.



ATMA

As information needs become more personal and individualised, the extension systems demand a one fit model that meets each one's demand, while sustaining the market orientation. In the context that, as argued by several extension scientists as well, there is no one single best fit extension model or support system that enables extension stakeholders to meet the diverse needs of the clientele (especially in the developing countries). ATMA, to some extent, has fostered the convergence with research institutions, extension service stakeholders at all levels and farmers in India, in particular Tamil Nadu, and also evolved as "flexible location specific agricultural extension model". However, in today's extension context of the state, the autonomy of ATMA has become over politicised, including Farmer Friend and seldom reflect the gaps of knowledge, skill, and capacity of farmers, as well as extension personnel. Field evidence suggests that the extension roles of BTMs and ATMs are often (mis)-used by the Dept. of Agriculture, which results in overlapping of extension activities. Decoupling of ATMA, therefore from the Dept. of Agriculture is the much-needed reform for ATMA to exert its autonomy (at desired level). It also receives a dismal amount of funds, which is well below 0.5 % of the total budget allocated for agriculture, and therefore potentially affect the diffusion of knowledge on innovative technologies (both at farm level and scale).

State Agricultural Universities (SAUs) and KVKs

Tamil Nadu Agricultural University (TNAU) plays an important role in the state in terms of technology generation in agriculture (also education). Most of the technologies generated by TNAU are field-tested by KVKs for their location specificity and scaled up by the line departments. Also, TNAU reaches to the farmers directly through its TNAU Agritech Portal (average 6000 people visit per day), 12 Android mobile-based expert Apps (rice, banana etc.), KCC, ATIC, Uzhavarin Valarum Velanmai (0.12 lakhs subscribers), etc. Though links of the research system i.e. TNAU with KVKs and the line departments help popularisation of the technology at the field level, the technology seldom meets the expected needs of the farmers in the present days, compared to during the 1970s, 80s and 90s largely due to changing climate, market demands, consumer behaviour etc.

The state public extension players viz., the State Agricultural Extension Management Institute (STAMIN), the Department of Agriculture; horticulture; marketing; and allied sectors (also TNAU, TANUVAS, TNFU and KVKs) have supported the farmers with knowledge, skills and capacities on the innovative technologies, improved inputs, advance agronomic and livestock practices (also climate smart interventions) and with the supportive services such as weather information, market intelligence among others. Oftentimes, these extension services have failed to live up to the location specific (need based) knowledge of farmers that directly maximise the productivity, income and social (food) security. More so, because 93% of the farmers are marginal and smallholders (also lack 'on and farm resources'), with average landholding not exceeding 0.75 ha. Thus, 'knowledge and 'information need' differ significantly among these farmers.

Private and third sectors extension

To bridge these extension gaps of public, several private (input dealers, input companies, service providers- Tata Consultancy Services (TCS), East India Distilleries Parry Limited Parry (EID Parry) and third sectors (Tirunelveli Social Service Society (TSSS), CREATE and Vivekananda Kendra Natural Resources Development Project (VK NARDEP), Cereal Systems Initiative for South Asia (CSISA), M. S. Swaminathan Research Foundation (MSSRF) have emerged and are disseminating tangible and intangible knowledge and skill needs of farmers. Several Private extension models are successful in reaching out to the farmers and help them manage their farms effectively. The Plant Clinics Programmes (MSSRF), Onefarm (Ekgaon technologies), Farm Field (Sustainable Agro Alliance Limited (SAAL)), Reuters Market Light (Thomson Reuters), community gardening (Centre for Indian Knowledge System/ CIKS), Save Our Rice (CREATE), Women-led agriculture support system (TSSS), Namadu Parry Mayyams (NPM-EID Parry), knowledge-centric organic agriculture extension (VK NARDEP), also cyber extension advisory tools such as mKRISHI (TCS), the Nutrient Manager for Rice (NMR) of CSISA, mASK (Umadik- a researcher), Vivasayam Karkalam community (a Facebook page of Madhu Balan), etc., are a few innovative extension models that help enhance the productivity, income and farm sustainability while ensuring information needs of the farmers. This apart, the scientific extension services provided by both the (DAESI) trained input dealers (919 trained candidate as of now) and AC&ABC extension professionals (7764 in nos, to date) have the potential to match the farm-specific information and knowledge needs of farmers, also make farmers better crop/livestock managers and to remain relevant to the changing expectation of the consumer needs, though on a limited scale with a specific economic interest in mind. Field results reveal that the private extension, coupled with the support services of NGOs, CSOs, FPOs/FPGs, service providers, mass media, input dealers (Diploma in Agricultural Extension Services for Input Dealers (DAESI), professionals of Agri-clinics and Agri-Business Centres (AC&ABC) can enhance the knowledge of present technologies and their adoption. However, they need continuous support from the state in terms of finance, (common) collaborative platform for interacting with scientists, training, capacity building, effective convergence, facilitation of networking and the like to work at scale, also serve the larger interest of smallholders. It is, therefore, to make the extension systems more clientele/farmer-friendly, the following policy implications are discussed as emerged from the study.

Policy Recommendations

- Agriculture received only 6.4 %, 6.3 % and 6.1 % of the total budget outlay during 2018-19, 2019-20 and 2020-21 respectively. However, given the growing demand driven advisory needs of farmers requires more budgetary allocation for agriculture in general and extension systems in particular.
- ATMA being the engine and convergence model of the agricultural extension services and rural innovations at present, the state needs to evaluate the impacts of extension approaches of ATMA in terms of increased knowledge of farmers on new technology and a corresponding increase in the adoption rate, as well as how the different extension methods such as farmers training, farm field schools, farmer friends, demonstrations influence the farmers' decision making and their livelihoods. This will help the state to assess the impact of agricultural extension (especially return on investment) and to attract the donor agencies for more financial support. As well, to tap the full potential of ATMA, the budget for ATMA needs to be increased to at least 2% from the current level (>0.5%).
- The findings indicate that ATMA organised around 9.67 lakh (9,67,000) farmers training from 2017 to 2020. However, there is no evaluation as to what extent such training has helped improve the knowledge, skills and adoption of technologies with increased farm productivity, the income level of farmers and environmental sustainability. Hence, the state needs to revisit its monitoring and evaluation of programmes and to establish Evaluation and Monitoring systems (within ATMA) in each district to measure and document the impacts of ATMA in terms of economic returns, social security and environmental sustainability (mitigation and adaptation).
- Limited convergence among the extension service providers within the public extension system hinders the large scale impact among the farmers. Though ATMA and KVK foster convergence among the research, extension stakeholders and farmers. At the field level, there prevails inadequacy in convergence. Evidence suggests that the line department (ATMA as well) has long been involved in changing the adoption behaviour of farmers on the new varieties such as CO 51 and TKM 13 (rice varieties) as the best alternatives to BPT 5204 (as tested by KVKs at multiple locations), however, not many farmers have adopted these new varieties. Also, traders (Market facilities) and consumers lack knowledge on these new varieties in terms of taste, preferences and other attributes. Therefore, the state must need to reorient its knowledge embodied technology transfer from backward (consumers-traders-producers) with better extension approaches that enhance the preferences of consumers and increase the tradability of the new technologies as well as improve the field level adoption and subsidy embodied extension targets only cultivators, not the 'tenants'. About 10 % of rich landholders own about 55 % of the arable lands in the state, coupled with growing absentee landlordism (13.56 %) would affect the access of the marginal and small farmers to the extension services embedded in the schemes such as Rashtriya Krishi Vikas Yojana (RKVY), National Mission for Sustainable Agriculture (NMSA), Pradhan Mantri Krishi Sinchayee Yojana (PMFBY) among others. Therefore, the state while preparing/ implementing the schemes/ programmes has to include tenants as their specific targets, if it wants to promote inclusive extension support services.
- Expert to farmer extension needs specific attention, the field extension personnel (e.g. AAOs) to farmers (1:1834) continues to widen in Tamil Nadu. This apart, their limited knowledge on the new technologies in agriculture resulted in farmers turning to private extension for their immediate knowledge and information needs. This can be attributed to the increased desk-based scheme activities of AAOs which have failed to reflect the professional competencies of the field personnel nor the farm-specific information needs of the farmers. Though the private extension service providers prove to transfer farm-specific knowledge that helps farmers to enhance productivity, they cannot cover each farmers' specific information needs on different crop production and marketing aspects. The Doubling the Farmers Income committee (DFI) recommend that the ratio of the

extension service provider to farming families can be at least 1:400 in the hilly areas; 1:750 in the irrigated areas and 1:1000 in the Rainfed areas. Hence, ensuring adequate manpower with new knowledge, skills and capacities at the field level is critical to the public advisory system to effectively respond to the information and innovation capacity development needs of farmers.

- In livestock extension as well, most of the extension services delivered by the veterinary personnel are co-existent with the supply of inputs with the top down approach. Also, the extension personnel of the animal husbandry rarely conduct “on-farm trials” of new livestock technologies. On the other hand, the on-farm trials of KVKs are more skewed towards crop production technologies. As a result, farmers earn not more than 10 % of the income from the livestock within agriculture. The state allocated only ₹ 1,678.26 crores to Animal Husbandry department during 2020-21. Given the vast number of livestock systems and its upward growing curve needs special attention from the policymakers. Therefore, there is a need for overhauling of the livestock extension system with need based training, livestock information, demonstration and on-farm trials of innovative livestock technologies from time to time.
- As of March 2020, the state has trained only 919 input dealers (3.17%) under the Diploma in Agricultural Extension Services (DAESI) conducted by the MANAGE in collaboration with the State Agricultural Management Institute (STAMIN), while all India trained dealers was 28,986. Field evidence suggests that farmers rely on the input dealers for most of their agricultural information due to accessibility. Therefore, the state needs to increase the number of DAESI training by covering all the input dealers in a short time possible. There is also a need for the assessment of the total untrained and prospective input dealers in the state as the state has several unidentified input dealers.
- More often, farmers receive only inputs, not the knowledge associated with it as most private companies are largely motivated by profit rather services, and therefore, the state must promote Public-Private Partnership (PPP) with input and farm machinery companies to legalise, not just to supply inputs, but also to educate the farmers with knowledge embodied in inputs (fertilisers, pesticides, farm machinery) and their management.
- Several actors in the extension value chain have embraced the cyber extension for the diffusion of innovations and connect every farmer with the aim of no one is left behind. Though it offers a more pluralistic form of extension approach, there exist different types of cyber extension models. As Uzhavan Mobile App is becoming a one-stop cyber extension model, the state might involve the private and third sectors to this platform to act as a single-window extension for a larger benefit of every stakeholder (and end-users).
- The present public extension systems with the top down approach and the complementary support extension of private and third sectors, therefore, must undergo structural changes. As agriculture is moving towards farm enterprises and entrepreneurship, the state should revisit its extension policies that foster rural innovation, agri-incubation and business with more emphasis on gender equity, targeted youth-specific programmes, - participatory, multi-stakeholders dimension (at scale) and community-based approach (at the farm level). This may help transform the agricultural extension and advisory systems in the state of Tamil Nadu by overcoming the challenges relating to crop production, development of enterprises and innovations.

Working paper on “Agricultural Extension and Advisory Systems in Tamil Nadu” is available at www.manage.gov.in

Authors

Dr. Saravanan Raj, Director (Agricultural Extension), National Institute of Agricultural Extension Management (MANAGE), Rajendranagar, Hyderabad, Telangana, India. (saravanan.raj@manage.gov.in/saravananraj@hotmail.com)

Mr. Vincent A, MANAGE Intern, National Institute of Agricultural Extension Management (MANAGE), Rajendranagar, Hyderabad, Telangana, India (vincentvinil15@gmail.com)

Citation

Saravanan, R. and Vincent, A. 2020. Agricultural Extension and Advisory Systems in Tamil Nadu. Working Paper 3, MANAGE Centre for Agricultural Extension Innovations, Reforms and Agripreneurship, National Institute for Agricultural Extension Management (MANAGE), Rajendranagar, Hyderabad, India.

©MANAGE, 2020

Disclaimer: The views expressed in the document are not necessarily those of MANAGE or officials with whom the authors interacted but are of the authors’ own based on the interactions and observations during the field study conducted in Tamil Nadu.



National Institute of Agricultural Extension Management (MANAGE)
(An Autonomous Organization of the Ministry of Agriculture and Farmers Welfare, Govt. of India),
MANAGE-Centre for Agricultural Extension Innovations, Reforms and Agripreneurship (CAEIRA),
Rajendranagar, Hyderabad – 500 030, Telangana State, India