Blog 16: September 2013

aesa Sharing, learning and networking for innovation Blog

Is Horticultural Extension Getting the Priority it Deserves?

Though public extension has played a key role in transferring technologies in agricultural crops, its role in promotion of horticultural technologies in India has been limited. While horticultural development got comprehensive policy and budgetary support during the XIth Plan, it hasn't made any difference to horticultural extension provision which continues to remain weak. The need for strengthening extension provision in horticulture is much greater now than ever before, argues, Saju George and M.R Hegde.

The diverse agro-climatic conditions prevalent in India enable the production of a wide variety of horticultural crops. It also facilitates crop diversification, productive use of marginal lands and employment generation through cultivation and value addition.

Horticulture sector also contributes to achieving nutritional security and earning export revenue. It contributes around 30 % of the agricultural GDP (from about 13.08 % of the total cropped/net area) and 37 % of the total exports of agricultural commodities (GOI, 2011).

Box 1: Horticulture in India

In India, the Horticulture sector refers to fruits and vegetables including tubers, ornamental, medicinal and aromatic crops, spices and plantation crops. India is the second largest producer of fruits and vegetables in the world with annual production of 77 MT and 150 MT respectively. India occupies the first place in the production of mango, banana, litchi, papaya, pomegranate, sapota and aonla and 2nd place in lime and lemons. It also occupies first position in the production of cauliflower, second in onion and third in cabbage (NHB, 2011).

Small and marginal farmers dominate the sector. The sector is labor intensive and on an average it employs 84.33 mandays per acre per year (GOI, 2005). Only 2 % of the horticultural produce is commercially processed in India as compared to 30% in Thailand, 70 % in Brazil, 78 % in Philippines and 80 % in Malaysia (GOI, 2005).

Horticulture has been recognized as a potential sector since the IVth Five year plan (1969-74). Comprehensive support (policy and budgetary) has been extended for the development of horticulture sector in the country during XIth five-year plan period (2007-2012). During this period three flagship schemes having impact on horticulture development namely, National Horticulture Mission (NHM), Horticulture Mission for NE and Hilly Area and Rashtriya Krishi Vikas Yojana (RKVY) were also implemented. The effort made for horticulture development through the said flagship schemes have been reinforced by other ongoing schemes of National Mission on Micro Irrigation, schemes of Coconut Development Board and National Horticulture Board.

Though the horticulture sector was pegged to grow at 6 % in the eleventh five year plan, the latest estimates indicate that it will achieve only about 5 % growth during this period (GOI, 2011). India aims to double its horticultural production by 2030. But achieving this growth depends to a large extent on the availability, access and application of new knowledge by different stakeholders in the horticultural sector. An efficient and effective extension provision that facilitate knowledge exchange and application is therefore critical for enhancing productivity and competitiveness of the horticultural sector.

Public sector extension has been generally weak in the horticulture sector. Several positions remain vacant in the state Departments of Horticulture (DoH). The working group on horticulture and plantation crops for the XIIth Five Year Plan (GOI,2011) noted that that horticulture extension is not only dependent on strength and high academic qualification of manpower appointed as extension workers but it also depends on quality and relevance of extension messages, capacity of extension workers in understanding of technology needs of the stakeholders and selecting most appropriate technology solutions to the problems and finally in conveying the same to horticultural farmers and producers. Extension also has to deal with the increasing demand for advice on high-tech horticulture and managing post harvest infrastructure. Considering the special features of the sector, horticultural extension has to be organized differently.

Organizing Horticultural Extension

Table 1 illustrates the nature of challenges in horticulture and its implications for organizing extension for horticulture.

Table 1. Issues in Horticulture and its implications for organizing extension

Sl. No.	Issues in Horticulture	Implications for organizing horticultural extension
1.	**Technology intensive**: Horticultural sector is technology intensive. With demand for fresh fruits and vegetables increasing even during lean season, polyhouse cultivation of horticultural crops is gaining importance. Urban and peri-urban horticulture has been expanding over the past one decade .New polyhouses are coming up to meet the increasing demand for horticultural produce round the year.	Specialist extension functionaries who can advise farmers on hi-tech horticulture are needed
2.	**Availability of quality seed and planting materials**: Seed and planting material are the basic foundation on which agriculture and horticultural growth can be achieved. Good quality seed and planting materials especially	There is a need to train more farmers/ farmer - entrepreneurs for

	of fruit crops are often not available in sufficient quantities to meet the demand.	production of quality seed and planting material.
3.	**Poor extension coverage**: The ratio of farmer to extension agents is very poor in horticultural sector. This ratio needs to be narrowed down by strengthening the state level horticultural departments with more human resources. Several positions remain vacant in the Department of Horticulture (GOI,2011). For instance, in Karnataka, out of the 5390 positions in the Department of Horticulture (DoH), only 3678 positions are filled. The vacant positions in the DoH in other states are as follows: Andhra Pradesh (49 %), Gujarat (53%), Madhya Pradesh (35%), Tamilnadu (16%), West Bengal (75 %), Haryana (31 %), Bihar (44 %), Uttar Pradesh (35 %) and Kerala (6%).	Number of extension officials in horticultural sector needs to be increased by way of recruitment, contractual employment or deputation.
4.	**Increasing concerns around food safety**: With the growing awareness on health issues, the demand for pesticide residue free safe produce is growing. Adoption of IPM (Integrated Pest Management) and INM (Integrated Nutrient Management) practices can considerably improve food safety standards but promoting these types of technologies would require requires intensive extension efforts including approaches such as farmer field schools.	Promotion of IPM and INM technologies through farmer field schools should be an important priority in horticulture.
5.	**Predominance of small and marginal farmers**: Most of the vegetable farmers fall under small and marginal farmer category and they require regular advisory support. Input dealers and neighboring farmers are their main source of information and these arrangements are largely unsatisfactory.	Extension should reach out to service the needs of small and marginal horticultural producers
6.	**Marketing** : Being perishable, fruits and vegetables need to be marketed or processed quickly. Rural roads, collection centres, cold storage facilities, well functioning markets are all required if farmers have to gain adequate income from horticulture.	Extension should focus on organizing producers and strengthening their links to various actors across the value chain
7.	**Post Harvest Management**: Value addition will help to overcome the problem of seasonal variations in production and demand and realize better incomes. Post harvest technologies are a must for the development of horticultural sector.	Specialists dealing with post harvest management should be part of the horticultural extension team.
8.	**Mechanization in Horticulture**: With increasing rural wages, farmers especially those who are growing vegetables are looking for mechanizations of farm operations to save on labor costs. But with shrinking landholding size, it is difficult for the small and marginal farmers to have individual ownership of agricultural/horticultural machinery.	Custom hiring centres and hi-tech machinery banks, from where small and marginal farmers can hire required agricultural machinery may be established. Setting up of demonstration units at the district level to help farmers experience different types of farm machinery might also help.

9	**Entrepreneurship development**: For horticulture to develop, entrepreneurship needs to be nurtured among rural youth. Production of seed and planting materials, bio agents, bio-pesticides, biofertilizers, foliar nutrient products; installation of drip irrigation systems, promotion of protected cultivation are some potential areas for entrepreneurship development.	More support has to be given for entrepreneurship development in horticulture.

Status of Horticultural Extension in India

There are different types of extension providers in the horticultural sector. These are as follows:

a) State Directorates/Departments of Horticulture: At least half the number of states in India has a separate Directorate/Department for Horticulture. However their, scope, resource and commitments vary widely. In the state agencies, senior officers oversee the administrative functions and extension work is left to the lower level functionaries. Many of these lower level functionaries lack knowledge of advances in the field of mechanization, post harvest management, processing and marketing. As a result, they lack confidence in addressing to field level problems faced by farmers.

Some of the states such as Karnataka, Maharashtra & Kerala have robust horticultural programmes. In Karnataka, the Horticultural Producers Co-operative Marketing and Processing Society (HOPCOMS) help farmers in obtaining remunerative prices for their produce. It also supports farmers in scientific production of fruits and vegetables through supply of quality inputs and technical advice. The horticultural farmers can obtain prices of horticultural produce through SMS service of HOPCOMS. In Kerala, the Vegetable and Fruit Promotion Council, Keralam (VFPCK) supports horticulture extension through organizing farmers into self help groups and facilitates their access to technology, credit and markets. In Maharashtra, the Government has been actively supporting formation of farmer groups and marketing co-operatives. Establishment of Floriculture Park (Pune) and Wine Parks (Nashik and Sangli)

and Food Parks (Pune and Nagpur) are all expected to strengthen the value chain in horticulture in the state.

b) Central agencies & Mission Directorates: There are many central agencies involved in horticultural development. National Horticulture Board (NHB), Coconut Development Board (CDB), Directorate of Cashewnut and Cocoa Development, Directorate of Arecanut and Spices Development; Spices Board, Tea Board, Coffee Board and Rubber Board have their own field offices for implementation of their schemes. Apart from this some of the recent missions such as Horticulture Mission of North East and Himalayan States (HMNEH); National Horticulture Mission (NHM); National Mission in Micro Irrigation (NMMI), and d) National Bamboo Mission (NBM) etc provide grants to states for horticultural development. Each of the Mission Directorate has an ad hoc Technology Support Group (TSG) which consists of outsourced experts most of whom are retired senior functionaries from ICAR/SAUs.

c) ICAR SAU, KVKs and ATMA: ICAR institutes and SAUs basically concentrate on research and extension education and they have limited funding and manpower for carrying out extension work in the field. So their services are mostly utilized for capacity building of line department extension staff. KVKs are organizing a number of trainings on horticulture but again lack of sufficient operational funds constrains their effective reach. Agricultural Technology Management Agencies (ATMA) at the district level do focus on field extension programmes, but again their activities are also limited due to funding constraints and capacity gaps related to horticulture.

d) Agribusiness Firms: Several agribusiness companies are engaged in procurement and processing of horticultural produce. Many of them have introduced new varieties and brought better production and processing technologies. The examples include: Pepsi in West Bengal and Punjab, ITC in Madhya

Pradesh, TATA Khet se in Punjab, McAins in Gujarath and Adani in Himachal Pradesh. Organised retailers such as Reliance fresh, Heritage, Spencers, More, Food world, Nilgiris have entered into vegetable procurement and they do provide limited technical advisory support (Ravikumar, 2013). Farmers selling their produce to organised retailers are found to benefit by way of higher prices and some of these organised retailers have set up demonstration farms, nurseries and formed technical support teams to offer extension services (Sulaiman et al, 2010). Buyers who enter into contract production programme of horticulture crops for exports, processing or domestic marketing do supply seed and planting material, farm inputs and relevant technologies. This group is a very effective in transfer of technology in respect of certain specific horticultural crops like cut flowers, export quality grapes, wine variety of grapes, green peas, exportable mangoes, gherkins etc.

e) Growers Associations: A number of growers associations have been successfully providing extension support in horticultural crops like pomegranate, grapes and mango especially in states such as Maharashtra and Karnataka. However many of the growers associations started with public funding have not been successful. For instance, during the last one decade, the National Horticultural Board has promoted some 19 Growers Associations and provided seed money and grants for meeting initial administrative expenses. But these associations are not engaged in field extension work, and they also failed to expand the membership base, (GOI, 2011).

f) Consultants: There are a number of hi-tech operations in respect of commercial horticulture projects which require certain amount of expertise/skill like pruning, grafting, poly-house operations, maintenance of fertigation system etc. Consultants are generally engaged in rendering this kind of extension services by farmers especially those growing high value commercial horticultural crops like roses, gerbera, colour capsicums and exotic vegetables.

g) Input Suppliers: Seed, pesticide and fertilizer companies are engaged in limited extension services. Most of them organize events to promote their inputs among farmers.

h) ICTs: Most Radio and Television stations air programmes on horticulture. Mobile service providers such as IKSL, RML etc are offering weather, crop and price advisory services through SMS or Voice mail to the subscribers for their farm service. Some of the KVKs have also stated providing SMS advisories to the farmers who are registered with them for this service.

Conclusions

Over the years, horticulture has emerged as one of the potential agricultural enterprise in accelerating the growth of the Indian economy. Apart from this, it contributes to achieving nutritional security, poverty alleviation and employment generation. The horticulture sector is currently going through a period of significant changes. The current emphasis on urban and peri-urban horticulture, precision farming, hi-tech horticulture, organic farming, horticultural processing & export and expansion of organized retail in fruits and vegetables all indicate the new momentum in this sector. Considering the high perishability of the produce and volatility in prices, an efficient supply chain that links the different actors in the horticultural value chain is critical for horticultural development.

Extension services are generally weak in the horticultural sector. Lack of co-ordination among the different service providers is very common in this sector. Increasing the number of extension staff as well as enhancing their capacities to deal with the evolving demands of farmers need priority attention. Horticultural extension should embrace a value chain approach where the capacities of different actors in the value chain (from provision of quality planting material, quality inputs, advisory services, production, processing to marketing) should be continuously enhanced. Apart from strengthening the capacity of extension staff in the public sector, there should be a provision for enhancing capacities of commodity groups, grower associations, input suppliers, contract buyers, agribusiness firms all need new capacities. ATMA, SAMETIs, KVKs, SAUs, NHB, NHM and ICAR institutes can play a major role in this endeavor. Convergence of different schemes and programmes in horticulture also need emphasis.

References:

Economic Survey (2012-13). Agriculture and Food Management. Govt. of India. (available at**http://indiabudget.nic.in/es2012-13/echap-08.pdf**)

GOI (2011). Report of the Planning Commission working group on horticulture and plantation crops for the XIIthFive Year Plan (2012-2017), Govt. of India. (available at**http://planningcommission.nic.in/aboutus/committee/wrkgrp12/agri/wg_horti1512.pdf**)

GOI (2005). Report of the working group on Investment, Credit, and technical support to promote self employment in Agriculture, Horticultures, Afforestation, Dairying and Agro-Processing; Planning Commission, Govt. of India. (available at **http://planningcommission.nic.in/aboutus/taskforce/inter/inter_slfagr.pdf**)

NHB (2011). Indian Horticulture Database. National Horticulture Board, Ministry of Agriculture, Govt. of India. (available at: **http://nhb.gov.in/area-pro/database-2011.pdf**)

Sulaiman R.V., Kalaivani, N.J. and Handoo, J. (2010). Organised Retailing of Fresh Fruits and Vegetables: Is it really helping farmers? CRISP Working Paper 2010-011, Centre for Research on Innovation and Science Policy, Hyderabad. (available at **http://www.crispindia.org/docs/6%20Organised%20retailing%20in%20fruits%20and%20vegetables.pdf**)

Ravikumar, R (2013). Farmed out to Big Retail. Businessline, 26,May, 2013. (available at**http://www.thehindubusinessline.com/industry-and-economy/agri-biz/farmed-out-to-big-retail/article4753539.ece**)

*(Dr. Saju George, is Senior Scientist, Division of Extension and Training (***sajushiby@gmail.com***) and Dr. M.R. Hegde, is Principal scientist & Chairman, Research Management & Coordination Committee at the Indian Institute of Horticultural Research (IIHR) Bangalore Email:* **mrhegde@iihr.ernet.in***)*