

Scaling up sustainable agricultural innovations by small farmers and artisans

A presentation from Honey Bee Network and National Innovation Foundation (NIF)

Indian agriculture faces a major challenge of reducing the cost and increasing the profitability without impairing environment. The content of knowledge has to increase and that of materials has to decrease. The innovations at grassroots as well as outstanding traditional knowledge can contribute significantly towards this goal. The need is to align innovations, institutions and informed policy making.

Context:

Honey Bee Network established 19 years ago has helped in scouting more than 85 per cent of the 60,000 innovations and traditional knowledge practices from over 400 districts of the country. A large number of them are duplicate or common knowledge. Through prior art search, NIF identifies the unique practices, which deserve to be recognised through awards, appreciation and/or support for value addition, business development, IPR protection and dissemination. Given very scarce human and financial resources, NIF has not been able to do justice to the aspirations of the creative people of our country. More than 65 per cent practices deal with herbal knowledge for human or animal treatment or plant protection. NIF has filed 131 patents in the name of farmers and artisans within India and abroad of which 24 have been granted in India and three in USA.

Micro Venture Innovation Fund at NIF provides risk capital for investing in commercialisable technologies. The difficulty, however, is that majority of the technologies are not ready for commercialisation without considerable R&D and design input. It is for this purpose that resources are a major constraint. With all its limitations, NIF and its sister institutions offer significant synergy with national agricultural policy goals.

Key areas of cooperation:

- a. Plant varieties: A very large number of farmer bred plant varieties needing systematic, multi location trials and demonstration where necessary. Wherever these varieties have diffused already, their efforts deserve to be formally appreciated through further support.
- b. Pest control: Non-chemical plant protection through herbal pesticides and growth promoters need systematic, time bound testing and trials for large-scale diffusion through commercial and non-commercial channels.
- c. Agronomic practices: Enhancing productivity through non-monetary inputs, may be given much higher importance than has been the case so far.
- d. *In-situ* conservation of agrobiodiversity: Traditional Food Festivals (Sattvik) organised at IIMA for last three years demonstrate tremendous potential for creating urban demand for less known crops and varieties and their recipes. Public procurement and distribution system has neglected such crops. Market based incentives for conservation and income augmentation can be facilitated by systematic

research and dissemination of distinct nutritional properties of minor grains and other vegetables. Sattvik 2007 could be an occasion for Ministry to assess the utility of such festivals all over the country to create demand for produce of farmers in marginal environments.

- e. Farm machinery: Different classes of farmers need different variety of farm machineries. Ranging from cycle hoe to motorcycle based ploughing machine and small tractors have been developed by the farmers. Similarly, machines have been developed for mulching, inter culture, earthing, harvesting, processing, etc. Manual milking machines to modified pulley, coconut husking, leaf mat making looms, etc., illustrate the range of simple technologies generating employment and improving productivity. These equipments need testing, improvement, redesign using ergonomic principles. Today, the central and state research and testing institutions charge same fees to a farmer innovator as they charge to a large company. This is an unfair system.
- f. Agro processing: Decentralised agro processing can add lot of value to retain higher share of the value chain locally. Coconut, cotton, coir, lemon, garlic, etc., have been processed through small machines innovated by farmers and local mechanics.

Key policy issues:

1. Involvement of district agricultural officers and their team in scouting, documenting, validating and disseminating grassroots innovations and traditional knowledge.
2. Utilisation of the state and centrally sponsored research stations/KVKs for location specific trials for local innovations.
3. Support of extension machinery for non-chemical, agricultural practices and inputs developed by the farmers.
4. Briefing of agricultural production commissioners at central level before each season about new innovations and their possible applications in different parts of the country.
5. Support for laboratories dedicated for adding value to farmers' innovations so that decentralised mechanisms for farmers' participatory R&D can be created.
6. Involving innovative farming communities and individuals in certifying compulsively organic products in marginal regions.
7. Allocation of special time on public media (radio and television) to create culture of innovation at grassroots and disseminate useful sustainable practices.
8. Cooperation with Rural Development Department to engage workers in the NREGP to map resources, document knowledge and create content for ICT enabled kiosks.

Specific interventions:

- i. A letter from Secretary, Agriculture to all the districts and state agriculture departments inviting them to join hands with NIF in its mission to uncover the rural genius.
- ii. Mobile exhibitions of non-chemical alternatives, particularly in the regions where farmers have suffered considerable loss due to failure of chemical input intensive agriculture.
- iii. Characterisation of the germplasm for their food processing quality so that new demand from around the world may be created for nutraceutical properties of these foods.
- iv. Regular review of patents being granted in different countries on the commodities exported by India so that future supply of value added products from India is not affected adversely.
- v. Large scale trials of herbal growth regulators having pesticidal properties, particularly in the regions where farmers have committed suicide. Giving more credit for trying solutions that have not worked so far will not help.
- vi. Large scale demonstrations of machineries at public cost to stimulate their demand.