FROM STAPLES TO HIGH-VALUE PRODUCE

Promoting crop diversification for doubling farmers' income

Growing consumption demand for fruits & vegetables offers an opportunity for targeted invention to eliminate smallholder poverty

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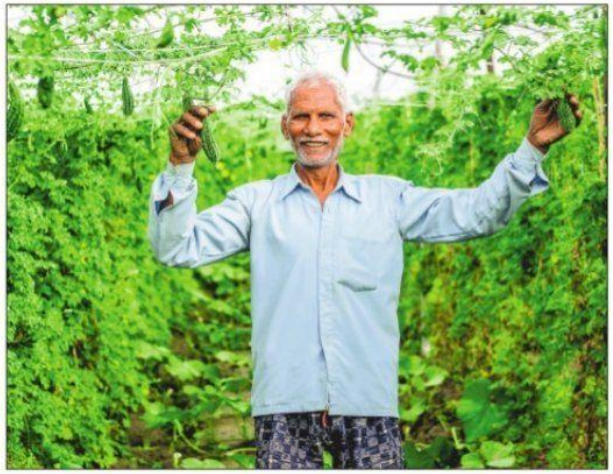
RAMKISHAN, TILL two years ago, grew paddy and wheat on his one-acre land. This farmer, from Selawan village in Bindki tehsil of Uttar Pradesh's Fatehpur district, has no smartphone or bank credit access. With an annual household earning below Rs 50,000 (until recently), he represents the millions of smallholders in India, stuck in traditional cultivation methods due to inability to avail knowledge and institutional credit.

Prime Minister Narendra Modi, in early 2016, called for doubling farmers' incomes by 2022. Meeting that goal requires improving farm productivity and price realisations, especially of smallholders, through dissemination of information relating to agronomic practices as well as marketing. Unfortunately, there is an acute dearth of extension workers to bridge this vital lab-to-land gap. UP alone has a mere 7,500 extension workers for 2.33 crore farmers, translating into a ratio of 1:3,000, as against a recommended 1:750. Moreover, roughly three-fourths of rural Indian households have no smart-phones or internet access. They are practically unaware of prevailing market trends or good agricultural practices and, hence, forced to continue growing low-value staples. Any plan for doubling farmers' incomes must rely on massively intensifying last-mile extension work.

Agriculture technology dissemination has drawn significant investor interest in recent years. A host of agritech start-ups today employ the farming-as-a-service model to provide custom hiring of equipment, crop protection and marketing services. But these are mostly tech-based innovations that do not reach three-fourths of our rural masses. Contract farming, too, helps predominantly large growers, who can make continuous supplies to food processing companies. The same goes for microcredit; the strong 30% plus growth rates posted by the industry correlates very little with increased agricultural productivity.

Farming is ultimately a business that is prone to both weather and market price risk. The higher risk involved, therefore, makes private sector investors seek much greater returns compared to other sectors. What we need is strong non-profit or hybrid structures that prioritise returns 'beyond profit' through provision of efficient microcredit and continuous knowledge-sharing, particularly targeting smallholder farmers.

Swayam Farmer Foundation is a non-profit organisation that provides end-to-end training and agri-input financing to smallholders, to enable crop diversification and sustainable cultivation practices, resulting in higher incomes. Our approach has been to get farmers to grow horticultural crops, by training them on proper sowing, irrigation, nutrient management, plant protection and harvesting methods — including through weekly visits and monitoring by field officers — and making available quality inputs on credit. We have been able to establish that with access to knowledge and credit for quality inputs, farmers can cultivate higher-value crops and increase their incomes by not just two, but 4-5 times.



Ramkishan grows cauliflower and bitter gourd on his one-acre land

Ramkishan previously spent around Rs 10,000 on seed, fertiliser, water and labour for growing wheat on one acre. Even with 2 tonnes yield and Rs 18/kg realisation, his net return wasn't more than Rs 26,000. But by planting cauliflower, entailing an expenditure of Rs 25,000, he's now producing 8-10 tonnes from the same land — and earning up to Rs 1.5 lakh by selling this crop at Rs 16-18/kg. Moreover, the cultivation cycle for most vegetables is 3-4 months, whereas the wheat season is 4-5 months. Recently, Ramkishan also grew bitter gourd on half-an-acre, incurring costs of Rs 12,000 and harvesting 4 tonnes produce that he sold for Rs 18-20/kg, netting about Rs 64,000.

For smallholders like Ramkishan, the growing consumer demand for fruits and vegetables, as opposed to cereals, presents an opportunity for more than doubling their incomes. That, however, requires the right kind of interventions. Under the Pradhan Mantri Krishi Sinchai Yojana, the government extends 90% subsidy on micro-irrigation for small and marginal farmers. But drip irrigation systems costs Rs 60,000 or so per acre. How many farmers can invest this money upfront, even if reimbursed within a month? Swayam provides short-term finance to farmers to purchase and install these systems, which can deliver about 70 per cent water savings (vis-à-vis traditional flood irrigation) and also boost crop yields through localised application and reduced leaching of nutrients.

An integrated model of training and financing can go a long way in enhancing the agricultural productivity of smallholders. Such a strategy can be effectively deployed to grow crops that command better prices and meet changing food consumption demands. But there is also the issue of price fluctuations, more so in fruits and vegetables, which needs addressing. Crop prices in India tend to follow a 'cobweb' model: If tomato prices are high this season, large numbers of farmers will grow it the next season. That results in a production glut and crash in prices, which, then, induces farmers to plant less and causing rates to spiral again.

The above herd mentality is what farmers need to be warned against. The risks of production gluts can be significantly moderated if farmers continuously diversify their cropping patterns from season to season. With availability of real-time data on prices across *mandis* and also sale of seeds, it would be possible to ascertain the likely acreage under a particular crop. A crop recommendation service can be provided accordingly, thereby mitigating herd behaviour and enabling farmers to make more informed sowing choices.

Swayam is currently working with 250 farmer families in Fatehpur and they have experienced 4x income increases. We believe our model of promoting crop diversification - which also leads to improved soil fertility, more efficient water and nutrient usage, and lower insect, weed and disease pressure - is replicable across India's 115 'aspirational districts' (that includes Fatehpur). Our target is to reach one lakh farmers by 2023.

Such targeted interventions, however, need active government support. The least that can be done is to make it easier for non-profit organisations to work in agriculture: Registering a non-profit with necessary compliances today takes at least 10 times longer than in the case of a for-profit organisation. We need a grassroots movement to build strong last-mile information connectivity with farmers, who, even with smart-phones and internet, require customisation and direct handholding for effectively utilising tech tools. If the likes of Ramkishan are to have a real chance to grow out of poverty, it calls for a far more robust collaboration of government, private sector and civil society.

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