Self-reliant organic farming – productive, profitable and sustainable

Evidence from Haryana- a core 'green revolution' area

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Alternative defined

- Organic agriculture is **not homogeneous**. It can be very **narrow**- only avoiding chemicals in plant nutrition and protection or very **wide** involving many agronomic changes. **Even wider view of OF can be quite diverse. Data from all diverse forms of OF should not be clubbed together.**
- **Distinction between self-reliant organic farming with no or very limited non-farm inputs and one that heavily relies on external/non-farm inputs important is particularly important.**
- Herein **self-reliant organic farming & natural farming treated as equivalent.**
- Our own experience/results/ understanding is that of NF.

A bit about Kudarti Kheti Abhiyan (KKA)

- KKA is a voluntary social change effort in Haryana with no external financial support or full time structure.
- Targeting small fulltime farmers dependent on farming for livelihood and not big or farmers who moved over from corporate sector.
- It provided only training and could not/did not provide financial or marketing support.
- Started working with farmers in 2009 and running on voluntary contribution of farmers.

Profitable, Sustainable and productive

- Of about 400 practicing farmers in contact with KKA, 1/3rd (132) are doing OF on whole of their landholding.
- This proves it is profitable; otherwise small fulltime farmers could at best do OF for self-consumption alone on part of their landholding. Reversals are in single digit.
- As regards, sustainability, there is not much debate about it; almost universally believed that NF is sustainable or at least more sustainable than chemical farming.
- Collected no separate data on sustainability but it is commonly reported experience that water use has declined, land becomes soft so ploughing operations are fewer. Many farmers are moving away from big powered tractors and towards small tractor or power tillers. Yield is improving overtime and farm operations becoming simpler/fewer.
- Key question is that of productivity as lower yields could negate sustainability or cost reductions gains. Anyway for KKA targeting comparable yield was essential as without marketing/fiscal support or equal yield full-time farmers could not be expected to shift to NF.
- While premium prices can make NF profitable for farmer, it will not convince either policy makers or those working for masses and not for elite.

But can OF feed the world? Can nutritious food be abundant too?

- An FAO conference examined "what if the world converted on large scale to organic agriculture" and concluded that 'organic agriculture has the potential to secure a global food supply, just as conventional agriculture today, but with reduced environmental impacts'
- Recently released report of CSE confirms that this is the case even in India.
- ICAR affiliated Indian Institute of Farming Systems Research (IIFSR), Modipuram, Uttar Pradesh running a "Network Project on Organic Farming" (NPOF) since 2004 in 20 centers of 16 Indian states reports

"18 crops responded positively to yield on par or higher under organic systems after the conversion period (2–3 years). Organic management of basmati rice, rice, maize, green gram, chickpea, soybean, cotton, garlic, cauliflower, tomato resulted in yield advantage to the tune of 4 to 14% over inorganic management … Yield reduction (after 8th cycle across the locations) of 5%–8% was observed in wheat, radish, potato etc."

- For crops like soybean and cotton, there was not even initial decline in yield. In Sikkim, before shift to organic farming, "the productivity of rice was 1.43 t/ha but 11 years later, … increased to 1.81 t/ha, and more interestingly, no yield reduction was observed during conversion period."

Impressive results in spite of the fact that these ICAR studies take a rather narrow view of organic farming

- Only source of plant nutrition and protection was changed. There was no change in other agronomic practices.
- These results achieved under mono-cropping conditions. Imagine the savings in input costs and yield increase if all elements of organic farming like mixed cropping, crop rotation, trees, improved composting etc were to be practiced.
- NPOF has belatedly started developing 'Integrated Organic Farming System models'. In the very first year these models increased 'the net income by 2 to 7 times over existing system'.
- Actually this experiment is a first real step in the direction of undertaking a 'Farming Systems Research'.

KKA Experience

- Initially yield, particularly in case of wheat, the key crop in Haryana was low.
- Analysis showed that adopted narrow organic.
- Desirability as well as feasibility of other agronomic changes questioned. Field visit convinced of need as well as feasibility;
- Farmers changed agronomic practices - mixed cropping, improved composting, reduced irrigation, staggered compost application etc- all of these in the first manual but not adequately emphasized.
- Yields improved- telephonic survey for two years focused on wheat, with attempted cross checking. Two different average yield bench marks- one for traditional/tall varieties (26q/h) and another one for HYV (46q/h) both based on official data. for mixed cropping, chemical MSP prices used for conversion. 98 farmers (45%) had better than average yield; 45% is not a small proportion as statistically generally only 50% can be above average. Number of such farmers increasing overtime.
- Transition period is a function of learning and not calendar time; in additional land even in first year farmers have got good yield.
- **If in core area of intensive farming, in so-called 'green revolution' area organic farming can give yield comparable to chemical farming, then perhaps it can do so everywhere and anywhere**.
- In examining whether organic farming can feed the world, we have taken the worst case scenario and focused on getting comparable yield alone. Improvements in distribution of food, curbing wastage and overeating, shift towards vegetarian diet, impact of improved nutrition, longer shelf life of food etc have not been taken into account. If these aspects are also taken into account, we may not even need so much production

Any constraints to full scale shift to organic farming?

- Along with Borlaug many claim that the "only about 25-30 per cent nutrient needs of Indian agriculture can be met by utilising various organic sources".
- KKA experience as reflected in its new manual prepared by experienced organic farmers of Haryana, dung and urine of one animal per acre per year is sufficient to get good/comparable yield.
- Official data shows that India has 0.87 bovines per net sown acre and if we add goats, sheeps etc. too then it comes to 1.54 livestock per net sown acre. So, inputs no issue.
- NF needs extensive training & being location specific needs farmer-to-farmer interaction.
- NF, at least in its initial stages, more labour intensive. However, due to mixed cropping this labour use is spread out round the year against periodic burst of intense labour use in chemical farming. This spreading out labour input over long period means farm requires continuous attention of farmer.
- So, natural farming has to be a whole time occupation and cannot be a part time enterprise; natural farming is for hands on farmers. Advantage or disadvantage?
- In an economy experiencing 'jobless' growth and extensive unemployment as well as

Wither agriculture policy?

- Now, that viability of organic farming even in terms of yield has been shown in ICAR's own experiments and even in 'green revolution' areas, it is time organic farming is mainstreamed or at the least "experimentation and demonstrations on government farms on 50:50 area basis on organic farming and other forms of farming" is done as per recommendation of the "Task force on Organic Farming" in 2001.
- However, in policy recommendations of NPOF, organic farming is sought to be limited to 'niche areas and crops'. For 'intensive agricultural areas (food hubs)' like Haryana recommendation is for 'Accelerated adoption of "towards organic" (integrated crop management) approach', which is just euphuism for retaining use of chemical fertilizers while adding organic manures. No explanation provided for this reluctance.
- In spite of recent official expression of support for OF, even 2016 Report of Task Force of the present government not released till date.

Lessons and implication for transition

- For getting comparable yield, no single silver bullet solutions- decomposer or jeevamrit alone; multiple changes in agronomic practices required, but it does not require rocket science either.
- One shot training does not suffice; periodic reminding, onsite visit must. KKA lacked this which delayed comparable yield.
- Advice regarding farm specific adoption of basic principles and methods needed as single formula does not work.
- Transition/handholding has to be led by master organic farmers with agricultural experts willing to engage with them as equals. A daunting task.
- To begin with extensive field visit to master organic farmers by scientists/officials starting with the top brass and going up to lowest level. Seeing contributes to believing.
- Farmer to farmer field visits must be facilitated and master farmers must be compensated/supported for this.
- Not just knowledge but farmers also need appropriate equipment suitable for organic farming involving mixed cropping, relay cropping etc. which at least in initial stages are not provided by markets.
- Access to free/cheap nutritional and residue analysis of farm produce coupled with simplified and accessible but reliable individual/group certification will go a long way in creating local organic markets
- Besides availability of equivalent farm subsidy (linked to yield, and ideally it should be further topped up to account for the fact that organic yield is nutritionally and environmentally better), cost of transition needs to be socially borne.
- Weeding remains a major cost element and if this can be sorted out through some plant-based sprays etc., that will go a long way in scaling up. Research may be focused on this.
- Facilitating improved composting/dung & urine input preparation in animal shelters will be a win-win strategy.

Not only establishment even critics of current development model neglect OF

- In recent farmers' agitation, while farmers' organisations rightly took up marketing and institutional issues, yet there was hardly a critical look at farming methods and technologies.
- Unfortunately more often than not, even critics of current development model forget that while scientific knowledge may be valid across time and space, direction of development of science, and more so technologies developed, do carry the birth marks of socio-economic structures that gave birth to them and cannot be used uncritically.

To conclude

- Chemical farming has to go and natural farming is the way to go.
- Some suggest rational use of chemicals. Experience shows not needed. Use of agro-chemicals in any amount will kill soil microorganisms which form the basis of fertility, and hence OF. 'Rational/limited use of chemicals' is not rational at all.
- The biggest challenge is that the larger socio-economic dynamics makes farming, whether organic or chemical, a fall back option of the last resort (or post retirement option for the very rich).
- But food, nutritious and healthy food, is and will remain bedrock of human life. So, neglect of food production and producers will not do.
- That requires change in development paradigm and not just in farming methods. Blatant celebration of consumerism has to go and equity- across nations, within nations and across generations (sustainability) has to take centre stage. Without equity not possible to protect environment, human life or improve farmers' situation.

कुदरती खेती के अपने अनुभव पर आधारित हरियाणा के किसानों द्वारा तैयार मार्गदर्शिका पुस्तिका निम्न दो लिंक पर उपलब्ध है.

soft copy of new manual of KKA prepared by practicing farmers and based on their own experience available at following sites.

https://www.indiawaterportal.org/articles/kudrati-kheti-natural-farming-manual-hindi

https://archive.org/details/kudarti-kheti-third-edition

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