

Farmer's Perspectives on Organic Agriculture

Organic agriculture and food has been growing in India in recent years. This is evident in both production and consumption and is slated to keep growing (Willer and Lernoud 2017: 145, 183). However, all academic studies (from my own finite search) focus either on the scientific or the economic aspects. Views on organic agriculture can be accessed but they are more in the nature of mission/philosophy statements either focused on the urban areas or of NGOs. Thus, I felt there is information missing on the sociological aspects of organic agriculture as pertaining to full time farmers working in production of organic food and other produce.

In my own urban engagement, it seemed that organic food is as much, if not more, a movement as it was a new category of products for consumption. I was particularly interested to explore farmers' engagement with organic food as a movement – on one extreme, was organic produce merely a tool for greater profits or, on the other extreme, they had ideological agreement with the ideals and philosophy of the movement and this became the primary decision making metric? These two abduced hypotheses were set up as ideal type binary poles of a spectrum with the aim to firstly, verify the poles and secondly, to explore how real life situations might lie on the spectrum between these two poles exhibiting particular combinations. The first part keeps the possibility of other options/reasons open.

These two hypotheses cover a whole host of epistemic interactions with the concept and possibilities of practices of it. An overall uncovering of such variety throws light on the positioning on the engagement spectrum.

Between epistemic interactions and practices, the emphasis is firmly on the former with the latter contributing in terms of ways to explore and delve into the former. I made this choice under the assumption that focusing on practices would lead me more toward the scientific and economic aspects which were not my intended focus. In other words, I wanted to explore more of 'why' than of 'how' of organic agriculture except to the extent the 'how' contributes to the 'why'.

It must be said here that the scientific, economic, and sociological aspects are all inter-linked and work in conjunction with each other. The latter could not be studied without at least a basic understanding of the scientific and economic ground reality as faced by the respondents. However, this necessary exploration ate in to the already quite limited time frame for fieldwork leading to my decision to sacrifice a lot of potential breadth for a basic amount of depth.

Within the sociological aspect, I have limited myself to the epistemic framework of farmers in association with the organic food/agriculture movement. I am using the term 'epistemic framework' as an umbrella category that includes the various forms of information, their

sources, the various analyses + interpretations done on that data both individually and collectively. In other words, how information and judgements regarding a phenomenon work at the everyday level to produce outcomes in terms of decisions and actions.

I have also purposefully limited the agricultural context in light of which I look at organic agriculture. Organic agriculture is still a part of the larger socio-politico-economic framework of agriculture. While it is a subset, it shares many features with the latter. For example, in Punjab, the issue of labour shortage (to do with changing caste relations within the state and NREGA caused changes in immigrant, particularly Bihari, occupational patterns) or – particularly in the Doaba region – the desire on part of the current generation (and their parents) to emigrate abroad instead of continuing with farming have a big influence on how agriculture functions in the state and organic agriculture is no exception.

Hence, in order not to get side-tracked, I have chosen to focus on those factors that are either pertinent only to organic agriculture or are have a facet which is unique to organic agriculture. The judgement of allocation of factors to appropriate categories was mine own and it developed as the fieldwork progressed.

The Field

The fieldwork was conducted in Jalandhar and Hoshiarpur districts of the Doaba region of Punjab. The original plan was to conduct fieldwork in appropriate locations from all over Punjab. However, during the initial phase of the fieldwork, I discovered that there are substantial differences between agricultural practices between Doaba and other regions of Punjab – including the sociological aspects. Very broadly speaking, Doaba region sees lower landholding size, more diversification in cropping patterns including lesser percentage of land dedicated to the main cereal corps, and the sociologically relevant factor of this region being the centre of emigration from Punjab indicating a reduction in status associated with agriculture. In light of this information, I was convinced that the Doaba region can be treated as unique from the other places. Covering other areas would thus have necessitated going over some of the basics of agriculture in those places as well, reducing the time available for my intended focus. Since I had started my fieldwork in the Doaba region (purely for logistical reasons), I decided to stick to this region rather than expand to locations in other places.

My primary respondents are two groups of farmers who form my case studies. The first respondent is Varundeep Vashist of Jai Kisan Welfare Society (JKWS) from Kanga Mai village in Hoshiarpur district. Varun is a farmer and president of the society which is a cooperative of organic farmers in the region. I took Varun to be the representative of the entire society. The second set of respondents is of Amarjit Singh and Karamjit Singh, two brothers of a family of ten in Chharhke village near Bhogpur in Jalandhar district. The family farms as a unit under the name of Bhangu Natural Farming (BNF) on 11 acres of land.

For contextual secondary data I also interviewed a number of farmers in various villages around Hoshiarpur, Jalandhar and Phagwara cities. These include both organic and non-organic farmers. I also talked to a government official in the department of horticulture in Thalla, Phagwara and a government agriculture scientist at the Centre of Excellence for Vegetables, Kartarpur, Jalandhar. Furthermore, I also interviewed a couple of organic produce shop owners and a number of consumers in Jalandhar city.

I selected the two case studies based on my assessment of their representation of the two poles of organic farming based on the primary reason for adoption – material benefits or ideological drive. As Karamjit put it: “There are only three reasons for someone to adopt organic farming: greed, passion or being forced [by the government].” As reported by a number of respondents, since the Punjab government’s role is minimal in promotion of and support to organic agriculture, I did not include the third reason as a possible pole in my study.

Furthermore, the two sets of respondents also form opposite poles in terms of membership. JKWS is a cooperative of about forty farmers and I wanted to explore their working as a corporate group rather than a collection of individuals. On the other hand, BNF is one family farming on about eleven acres as a single unit. They represented the pole of individual farmers interacting with organic agriculture.

Case Study 1 – Jai Kisan Welfare Society

Formed in 2015 as an offshoot of FAPRO, a farmers’ cooperative society in Hoshiarpur district, JKWS currently has a membership of 40 active organic farmers, the bulk of whom are drawn from the membership of FAPRO which provides a readymade catchment of around 700 farmers to convince to adopt organic farming. FAPRO also provided the initial funding for JKWS as well as access to processing plants and other facilities.

After finishing his studies and working in the corporate sector, Varun came back to his village with the twin desires of having his own startup as well as contributing to his immediate society. Initially he was given the charge of a project by FAPRO and on its success, the Board of Directors agreed to his suggestions of supporting a collective organic farming project. The entire project has been his brainchild and he currently acts as the president of JKWS. He comes from a farming family which still runs their own farms in the region. From my observation at his house and farms, it was clear that while his primary occupation might be with JKWS, he is still actively engaged in the family’s farms which were being run on the same principles and procedures that form the core of JKWS’ style of farming and were being followed by other farms I visited.

The team of JKWS comprises Varun and other local, educated youth in management roles overseen by the FAPRO Board of Directors and assisted by scientific, banking and other experts who consult for FAPRO as well. During one of my interviews, Varun received a call

by a farmer who wanted to book the services of an agricultural scientist for a farm visit. Similarly, equipment and facilities are also shared with a central cold storage for general produce and a processing plant for honey, turmeric and other spices.

In Varun's words, the farming practices of JKWS are more correctly called sustainable farming than organic farming. He is knowledgeable of the vast body of literature and multiple idea of and regarding organic farming. The core of JKWS' actual processes was adopted from the practical experiments of an individual farmer whose directing philosophy was of a return to natural roots of agronomy. This involves a combination of the five elements that are thought to compose nature – air, water, fire, earth and space; a construction deriving from an alternate-science/magic combination of explanations of reality. These principles were combined by that farmer with his traditionally developed, hands-on knowledge of farming to experiment and produce non-conventional practices with the primary aim of enhancing the quality and quantity of farm produce in a holistically sustainable way to ensure the wellbeing of the farmer.

JKWS builds on this initial set of process with their own ongoing experiments with pedagogic and intellectual inputs from all the sources they find relevant; these include ideas from the participating farmers, ideas from various textual sources – technical or otherwise – as well as other experts. Primarily, the process depends on maximising the efficiency of each input by understanding the nature and procedure of its impact. The farming is done on a system of raised, rectangular beds with narrow troughs running between them. There is an initial pre-season preparation of beds in which the field is tilled anew and the beds reconstructed and watered. Once sowing is done, the addition of water and other inputs is done on the troughs. Multi-cropping is done on the beds with particular sets of crops that have been decided based on a combination of theoretical understanding and practical experimentation which tries to consider harvest timings, crop cycles, market viability as supporting factors to agronomy concerns. The example I was explained involved sugarcane as the primary crop with the first secondary crop being cucumber, then onions and finally turmeric over an entire period of roughly 15-16 months. Sugarcane was the primary cash crop, turmeric was a high value crop also chosen because it requires less of sunlight and by the time it is planted, the sugarcane plants are quite low and provide sufficient shade. Cucumber and onion were chosen to their relatively small farming cycles providing for relatively continuous income while the farmer is waiting for sugarcane to mature. The efficiency of inputs is maximised by steps such as twice the space between each individual plant than normal precise timings, methods and quantities of application of water and other inputs to avoid over-competition between plants and oversaturation of inputs leading to wastage. The main sources of fertiliser are the straw and decomposing plants from the previous farming cycle. When asked about this latter step, I was informed, using quite detailed scientific knowledge for a non-scientist, about the proportions of each nutrient that form the body of each plant, how much is retrievable by on site composting, how the different varieties selected cover the deficiency in nutrients of other crops in a particular multi-cropping set displaying both

an awareness and an active engagement with technical knowledge which is applied in conjunction with everyday experiences and knowledge making.

In what was common with other sources, respondents and literature, using medical metaphors, the explanation of the organic farming process was that, like with addiction, there is an initial withdrawal period in which the quality of the field deteriorates influencing output. However, once the soil has been rejuvenated, in JKWS' case, by sticking to their particular process and formulation, all that subsequently needs to be done is regular minimal maintenance. This was also evident in their labour usage patterns in which barring the high requirement periods of preparation, sowing and harvesting, by ensuring daily implementation of practices such as weeding, reduced the labour requirement by not letting problems get out of hand. From my other sources, weeding was reported as the biggest labour requirement, but, on juxtaposed questioning, it did turn out that most of the others do not practise daily weeding. As I saw in a couple of farms, the amount of weeds in a field can get very large and dense – making it difficult for my untrained eye to differentiate crops from weeds – thus needing intense labour work.

This process of carefully and regularly maintaining a field once it has been setup was said to have removed the need for synthesised fertiliser intervention and reduced the need for pesticides. In what was then surprising for me, it turned out that some form of pesticides for particular pests are absolutely essential with no alternative existing; so much so that even internationally recognised commercial standards of organic certification do not restrict the use of these synthesised inputs – they merely recommend judicious and careful use. In other words, unlike the received idea of organic being 'chemical-free', reputed and trustworthy certification allows for the application of synthesised chemicals.

On being probed on this issue, Varun admitted that their actual mode of farming is sustainable rather than organic. While the certification process had been started for some of JKWS members, the main rationale given for doing so was that people recognise the 'organic' label and having the certificate would increase their marketability. In his view in terms of actual usage of synthesised chemicals, JKWS' practices are far ahead of recognised standards, with, for example, the conversion period to full organic from full conventional being only about a year rather than three years while reducing the initial drop in farm productivity.

This sustainability wasn't only in terms of the environment but as a holistic measure. The primary and the immediate target was improving farmers' welfare and standard of living chiefly by increasing their income through both lowering costs and increases prices – the markup, however, was intentionally kept lower than practices by other organic produces to ensure the viability of demand. From mandi rates, 10-20% markup went to the farmers and another 10-20% to JKWS. Despite having the option of selling (at least some of) their produce at much higher markups, upto even double or triple the prices, since JKWS is a collective that has to work for many member farmers, the decision was made to keep the

minimise the markup to ensure a large enough market so that every producer could benefit. This produce is primarily sold through their own outlets with some deals for supplying other shops and also main governmental agricultural marketing company. They also have a tie-up with a women's self-help group in a nearby village who buys their raw product and processes them for sale.

The theoretical ideas, or even the practical experiences were collected from a number of different sources and then experimented upon locally. A small number of their membership, who were called the more 'progressive' farmers, are usually the ones who conduct the experiments on their fields in collaboration with the management team. Any new idea, equipment or process is first experimented upon to decide its validity and the precise formulation of its application in the immediate farm context before it is advocated to other members. In this manner, they have experimented with green houses (polyhouses in local parlance) and rejected them, to take an example, and an experiment is ongoing on community farming with four farmers in a particular village pooling their land and resources on an equity basis to farm together.

Furthermore, the entire process was constructed, and implemented, with an eye towards flexibility as a response to variability in farmers' motivations, intentions and decision making. Apart from the technical recommendations, all other choices were sought to be increased. JKWS farmers have the option of using the JKWS brand or their own, to convert only a part of the field or their entire landholding and to decide their own levels of engagement with organic/sustainable farming and the society itself. Particularly the issue of partial conversion was justified to me in the terms that those are baby steps and the farmers are hesitant about new things. Such an approach recognises and allows for a process of discovery, understanding and acceptance that is spread over a larger period of time thus reducing the entry barriers to organic/sustainable farming by allowing for hedging of opportunity costs.

One of the testaments of the larger success of this endeavour and its processes, technical and otherwise, is that in a region which values emigration to Canada very highly and where, every farmer, even the successful and visibly well-off ones bemoaned the stature of farming and wished for their children to either get jobs in cities or emigrate to Canada, JKWS has seen an increasing interest by young farmers, who, admittedly, are primarily attracted by higher incomes but in that process have the potential of continuing with the traditions of their foreparents and reviving the rural Punjabi society.

Along with a practical approach, JKWS' advocacy to non-organic farmers relies quite heavily on other farmers who can act as living and successful examples of the claims JKWS makes and the processes it has developed. The basic ideas of the five elements of nature that forms the epistemological fundament of the rest of their farming philosophy and practice is one that can be considered to be a common-sensical scientific/magical understanding of the reality of nature which makes it a familiar basis for further arguments. A foundation of this

sort is combined with precise and detailed procedural insights, practically sensitive conversion process, a mutual support network leading to solidarity through the institution of a cooperative farmers' society – as both FAPRO and JKWS – along with a holistic approach that seeks to balance concerns regarding the environment, health (of the farm, the produce and the people), markets (in terms of costing, supply chains, marketing and consumer awareness) and future sustainability all with the aim of promoting overall farmer's welfare, including economic, both in the present and the future. This set of goal, ideas, specific practices and inbuilt (as much as is attempted) steps for risk amelioration make the JKWS organic/sustainable farming package, in my opinion, to be an attractive and reliable one. Even though my own opinion is irrelevant – I am not a farmer – this package was considered as attractive by most of my respondents. Since quite early in my fieldwork I had come across conflicting viewpoints, I had adopted the strategy of juxtaposing them by asking my respondents for their views on what was reported by other respondents. This was done both to affirm statements of facts as well as to explore the ways my respondents reacted epistemologically to (potentially) contrasting opinions, viewpoints and philosophies.

Throughout my interviews, one of the common themes that every respondent touched upon in their own way was that the primary concern of the farmer is their own immediate economic benefit. While, they are aware of the non-monetary costs of conventional farming such as ill-health or pollution, to take two examples, but lack of practicable means of reducing all these other costs and harmful effects without influencing their earnings negatively stops all but a few exceptional cases (who are also considered, in local understanding, as being 'progressive') from discarding the conventional economic/technical farming process as practised in Punjab with its reliance on credit cycles, synthesised chemical input and government support (or its lack).

In other reasons for resistance to adoption, I felt the most common one was a certain familiarity with the conventional system, particularly since it is so well established and institutionalised, leading to a undescribed hesitation to try out new things. As even one organic farming respondent told me, one has one's limitations and can only do so much. In adoption, there is a lot that has to be learnt anew, especially in its day to day practicalities of implementation and thus, whether you call it laziness or mental or social inertia (and my respondents didn't call it anything), there is a great lack of sufficient motivation to leave the existing comfort zone. This was an issue faced by JKWS as well in their advocacy efforts with a number of farmers also making it an issue of pride that they know their business and there is nothing to change or learn. This was called an ego issue by Varun but in my view even if ego is at play, it is only one part of a larger set of reasons, some of which are unintentional/unconscious, which create non-material barriers to adoption.

Admittedly, my sample size is quite limited and I am not sure of its representation of the entire set of farmers in Doaba, still, out my respondents only the BNF family were directly and completely critical of JKWS and their processes. They form the other pole of the

spectrum although, at the deep level, some of their processes are similar or even same with that of JKWS.

Case Study 2 – Bhangu Natural Farming

The BNF family was approached in the early 2000s by a government agricultural scientist for adopting vermiculture. They were initially hesitant and unsure about the idea. However, when a close relative of theirs died of cancer in 2006, they felt the blow and accepted the claims that pesticides are poison. They then decided, under the leadership of the now-retired grandfather of the family that they will eschew conventional farming and adopt vermiculture, at least a step in the right direction. In this stage they were still unaware of all the possibilities of non-conventional agriculture and new nothing about organic agriculture. However, their desire to completely remove their usage of synthesised chemicals led to a long series of exploration and quest for knowledge. In this process, they heard about and met one of the pioneering organic farmers in Punjab and that started them on their organic farming journey.

In the initial years, the brothers told me that their situation was that of students without a teacher. They had to learn on their own whether through discussions with their peers, texts or, chiefly, through experimentation. Eventually, they came across and got connected with Kheti Virasat Mission, one of the larger organic farming NGOs in the state whose work is concentrated in the Malwa region but has members all across the state. This happened around 2011-12, my respondents were unsure of the exact year and since then BNF has been following what they called pure organic farming, largely following the pattern set by KVM. However, by their own reporting and my observations when they took me on a tour of their fields, they do not blindly accept the ideas put forth by KVM but adopted them after due consideration and also experimental application. They continue to explore possibilities of new organic techniques and processes. I was shown test field in which they were experimenting with sowing patterns for paddy.

In the respondents' view, true organic farming is defined as purely in-field farming with no external inputs and no usage of any sort of synthesised chemicals. This even included factory synthesised gypsum which chemically is indistinct from mined gypsum. Moreover, they even rejected the latter since it wasn't produced on the farm itself. They also recognised that mechanical inputs such as tractors do not belong to organic farming but are practical necessities considering the general scarcity of labour in the region and the quantum of added workload.

Their main source of fertiliser input is manure they make on-farm from plant and animal waste. For dealing with pests, one part is taken care of by using biological means through promoting local flora and fauna. Their fields were surrounded by trees and they claimed to

actively plant trees as a social and environment benefit across the village, in the process creating habitat for the natural predators of the pests and also helping the environment in general. Of all the people I talked to, BNF were the most environmentally conscious and taking care of the environment wasn't secondary to other concerns for them, but rather parallel. They were also the most aware, or at least the most readily forthcoming without prompting, of the various species of flora and fauna in the local area, how the local biome functioned as a system and how each part worked.

In my assessment, another part of pest control as well as the entire organic farming enterprise was that they absorbed a lot of the costs. They have a contracted chicken farm which provided an alternate source income during their transition years and continues to provide added income. They are also a well-established player in the market earning a decent premium for their produce that they largely sell on their own by word of mouth to a dedicated customer base (which includes jaggery they market under their own brand) or irregularly a couple times a year in the Sunday organic markets organised by KVM in nearby Jalandhar. They appeared to be reasonably well-off with plans to break down some of the buildings on their lands to construct a better and updated farmhouse for the family. I concluded that their income is sufficient for their basic needs and some luxuries and therefore they have fewer requirements for economic efficiency from their practices of organic farming. They also reported that in the initial years when they were still going through conversion and weren't established, they chose to bear the economic costs because the moral and health costs of continuing with conventional agriculture were unacceptable to them.

The last, but not less significant, part of pest control occurred through the usage of asafoetida (hing) in its latex form which they sourced from outside the farm, diluted with water and sprayed on the fields. This usage of hing struck me, firstly, because I hadn't come across this anywhere else, even in literature and it appeared to be something they had discovered and developed entirely on their own. More importantly, they seemed to be contradicting their own philosophy of organic farming since however unprocessed their hing is being used in its original latex form rather than dried crystals or powders, it is still a non-farm source. On being pressed, the conversation entered a phase of awkward, unsure silence so I decided to quickly move on from that line of questioning. I would like more data on this point but my fleeting conclusion is that, at least at some level, they have become ideological about organic farming in that they have stopped asking further questions or delving into uncertain areas, they seem to have developed answers that are, consciously or more like unconsciously, comfortable sticking to. In this they are echoing a number of non-adopters who are, it can be argued, similarly sticking to conventional farming out of convenience of having already been socialised to that particular system. Having been through a traumatic experience and then a difficult transition period and now having achieved success, commercially and ideationally, they have achieved a state they are comfortable in. This is not to say there is no innovation or exploration taking place, it is, but

in my view, it is restricted to applications within the boundaries of the larger ideology/discourse/understanding they have of organic farming.

In the same vein, on being asked their opinions of JKWS, they said such organisations are also not really doing organic farming, that they are not true to the principles, and as an example, they said that some of their farmers would be doing partial organic farming, alluding indirectly to an oft-reported trend of some farmers to fraud the certification process by getting certified on a part of their land and using that certificate to sell produce from the entirety of their landholding. I must add the disclaimer here that JKWS seeks certification only for those farmers' fields who have converted their entire landholding to organic/sustainable. Crucially, this point was made before any mention of this in my interviews with Varun and in a later interview I was able to confirm this fact from the latter even though the analysis, rationale and judgement of the fact differed greatly between the two sets of respondents. Regardless of the factuality (or not) of allusion to fraud, the BNF's main point in reporting this fact was that one cannot be an organic farmer partially, it is a binary situation. Following their metaphor of poisoning the body, taking lesser poison doesn't mean one has become poison-free. Although, they also admitted that their farm is still a quarter poisoned because the air is polluted and the synthesised chemicals leach into their fields from neighbouring one via water or wind. However, that is not something they have a control over and I agree.

As a further marker of their subscription to a particular, in part self-developed, idea of organic farming, they reported that they do not trust the certification process whatsoever particularly since they once tried to get certified but the certifying company folded midway. Since then, having been associated with KVM and through the organisation with like-minded farmers across the state, their distrust of certification has only intensified to a principled opposition claiming that the certification process is on the one hand heavily prone to fraud (even if you have applied fairly, a certificate doesn't guarantee that the produce will continue to be fully and purely organic) and on the other that it doesn't go far enough since it allows certain practices that are, in the respondents' views, non-organic.

It was my overall assessment that the BNF family have managed to discover and establish themselves in a particular socio-economic niche with respect to organic farming and the system as they advocate and enact works quite well for them but it might not be scalable, even in part. They are a particular mix of personal motivations, individual personalities, historical incidents and social location/networks and it is the entirety of all of these that allowed them to be so successful while sticking to their ideological guns. As an example of personal motivations, the parents of the cousin who died of cancer had a markedly opposite reaction to the death than the BNF family. Unlike the latter, the deceased's immediate family blamed his death on "mata ka shraap", in order words, to bad luck or a godly curse. In their rationality that was a far more reasonable explanation than the one which claimed that the entire system of agriculture as it is prevalent is faulty and actually poisonous which

the BNF family were beginning to adopt. Similarly, difference of rationalities, and not just practical concerns, exists between the BNF family and JKWS.

On the more practical side of affairs, the BNF family is also one of the relatively early adopters of organic farming, especially in the Doaba region (as compared to the more recent boom in consciousness about organic production and produce) allowing them an early mover advantage to establish their credentials which obviated the need for a certificate. They are trusted by a dedicated group of customers who are of sufficiently large number to provide a good income.

Conclusion

The two sets of respondents, while adopting starkly different approaches to organic farming, are successful in their own ways. The BNF family can be said to be fully and successfully established in their niche and are quite successful as seen from the lack of any expression of particular immediate concerns and worries in their responses. They were quite sanguine about their situation, expressing distress only about the general state of affairs. JKWS, while not fully established yet, has shown success in what they have done so far with increasing numbers joining them and their current practices bearing fruits. More importantly, they display a potential for further successes.

While there are considerable surface level, and even some deep level, differences between two sets of respondents, I wish to highlight the deep level similarities I found in the two that I feel might have contributed to their own successes.

In both cases, education, whether formal institutionalised type or informal self-education through various sources, formed a crucial factor in their decision to shift to organic agriculture, to continue with it despite difficulties and to keep finding innovative solutions. Crucially, albeit to varying degrees, this education isn't over but is complemented by a learning drive that sees them continue to push towards greater knowledge and experimentation. The BNF family are still experimenting with particular techniques, even inventing some, and are also avid readers of multiple text sources.

As the scientist at the Centre of Excellence argued, conventional farming is safe so long as one pays attention to proper procedures and details of usage of synthesised chemicals and associated farming practices. A trend that emerged in a number of my conversations is that a large number of farmers in Punjab actually do very little hands-on work in the fields; at most they might drive a tractor for an hour two. Most of the on-farm labour is provided by migrant labourers. It is something that needs to be studied separately but I believe that most of those people who are conventionally socially identified as 'farmers' in Punjab are either just landholders (jimmidar in the local parlance which connotatively seemed to be closer to

farmer than landlord) leasing out their lands or even when their income does come from farming, are more in the nature of de facto farm-managers than actual farm-workers.

As a result, the scientist told me that there develops a lack of attention to detail and fine care in the actual farming practice. The labourers are interested in getting just enough work done to earn their pay with little concern for the land itself and the farmers are interested in a general level of work which provides them produce and conduct minimal oversight and monitoring. While the scientist was mentioning this with respect to pesticide usage, other sources corroborated this trend in activities such as planting or weeding. The weeding example, in particular, was quite visible in a number of fields I visited.

In contrast to this general trend, both sets of respondents in my case studies were actively involved in the day to day work on the fields, often doing the jobs that would otherwise be assigned to labourers, or doing them alongside. On one visit, I did see one member of the BNF family 'get his hand dirty' and in the case of JKWS, I am convinced that their model can only work with active, hands-on attention to details because that is the prime area for efficiency maximisation that allows the same for others. Watering has to be done a particular way and the beds have to be made just so without which the entire plan wouldn't work. This point was further supported by statements from both sets in which they said that organic farming requires attention to detail and you cannot do it perfunctorily.

Overall, regardless of the technique, organic or conventional, and ideological/moral inclinations, a farm system is sufficiently complex that hands-on approach is needed to make it a success. Along with this, a learning drive promoting continuous education of any sort is also essential to figure out solutions to new challenges and discovering and adapting to more and more complexities. This, I would say applies to all participants in the agricultural eco-system. One very common feature was that depending on the social-professional location, each person I would talk to would blame one of the others in the eco-system for the dismal state of affairs of agriculture in the state. I tried but I couldn't actually identify a single, primary source of fault. It seemed that somewhere, everyone had a hand in the faults of system without necessarily being directly responsible.

Attention to detail, education and learning drive are not, I am sure, the complete list of requirements for reforming the agricultural eco-system, but based on my fieldwork, I am convinced they need to be present in approaches from any of the sides involved. The government and the scientists do not have a more privileged perspective, just a parallel distinct one. Whatever the actual contours of a solution, and it could still very well be BNF still organic farming or JKWS style sustainable farming or something entirely different, to deal with the complexity of the system these three elements would be necessary.

References

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