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UTTARAKHAND ORGANIC COMMODITY BOARD SUPPLY CHAIN FOR BASMATI RICE

India

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SUMMARY

This article presents the marketing chain organized by the Uttarakhand Organic Commodity Board to supply organic Basmati rice from smallholder farmers in the Uttarakhand region of India. The state-sponsored project covers all aspects of setting up the marketing chain for organic farming: identification of farmers for organic farming, provision of quality inputs and technical assistance at the production level, and development of linkages for marketing through private-owned export companies. Certification is a very important aspect of organic farming, especially to access the export market. UOCB has developed an internal control system to support the third-party certification process. Farmers selling to the Board get a premium over farmers undertaking conventional Basmati rice production and their level of risk is lower. Farmers involved in this programme have benefited from the marketing activities set up by the UOCB. This case is thus an interesting model for public-sector support to quality improvement and marketing of agricultural produce.

1. INTRODUCTION

Agricultural produce in India is largely marketed through traditional channels. The typical approach for grain marketing in India consists of several players as shown in Figure 1. In the traditional marketing chain, where the produce is collectively sold, there is no premium for quality, and hence no incentive for the producers to emphasize on quality. With increasing private sector investment in processing, exports and retailing of agricultural commodities, there is a strong emphasis by these companies to develop supply chains for quality produce. Quality of produce is very critical in meeting the specific requirements for processing and export markets. Thus, companies or organizations involved in agricultural marketing, processing or exports have to work closely with farmers to meet specific and often very stringent quality requirements of the export market.

Figure 1: Marketing chain for agricultural produce in traditional channels in India

Farmer → Consolidator → Wholesaler → Semi-wholesaler → Retailer

It is important to analyse the emerging modern marketing chains for agricultural produce so as to understand their impact on farmers, and get insights into the involvement of small and marginal farmers in meeting international quality standards. The marketing chain developed by the Uttarakhand Organic Commodity Board (UOCB) for exports of organic basmati is investigated here.

In recent years, organic farming has gained momentum because of demand side and supply side factors. On the supply side, the after-effects of the green revolution and high use of chemical fertilizers and pesticides have had severe implications for the sustainability of agriculture. These concerns have forced farmers to look for more sustainable approaches to farming. On the demand side, the premium obtained for organic produce, specifically in overseas markets is leading governments and private entrepreneurs to put a high emphasis on organic agriculture. With high premiums and the positive effects of organic farming on soil quality, the emphasis on organic farming has only grown in recent years. However, allowing small and marginal farmers to produce under organic practices requires special attention due to the initial loss of productivity, the training required for farmers to adopt organic farming and the management skills and financial capacity to carry out certification of organic crops. An in-depth look at the UOCB's supply chain for organic basmati study will give important insights on the issues related to promoting organic agriculture. The specific objectives of this study are:

1. To analyse the functioning of the UOCB Basmati rice supply chain to see how small and marginal farmers are involved in meeting international quality and standards;
2. To present a comparative analysis of organic Basmati rice growers working with the UOCB with other Basmati rice producers selling to traditional marketing channels. Key aspects of the comparison are quality of output, productivity levels, quality of inputs used, access to inputs, price of output, price risk and access to marketing channels;
3. To understand the key issues in organic farming from the small farmers' perspective.

The next section gives an overview of Basmati rice production, consumption and exports in India. Before conducting a detailed supply chain analysis, the background on UOCB is presented in Section 3. Section 4 describes in detail the supply chain of organic Basmati rice developed by UOCB. A comparative analysis of "contact"¹ farmers working with the organization and other

¹ The farmers working with UOCB are called "contact" and not contract farmers. This is because the Agriculture Produce Marketing Committee (APMC) act has not been modified in the state. In the states where the APMC has not

farmers selling to the traditional market is presented in section 5. Section 6 focuses on the issues related to the promotion of organic agriculture in the country. Section 7 concludes with some experiences learned from this case.

been modified, contract farming which enables companies to procure directly from farmers is not permitted. In the case of Uttarakhand companies procuring organic Basmati rice from farmers for marketing do not physically procure from the markets, but they pay the APMC market tax call market cess, which is required in regions where the APMC has not been modified. However, since the region now falls within an Agri-Export Zone, this market cess is being waived.

2. BASMATI PRODUCTION AND EXPORTS FROM INDIA

Basmati rice is a special variety of long-grain fragrant rice cultivated at the foothills of the Himalayan mountain range in India for thousands of years. India and Pakistan are the only two countries producing Basmati rice. Total annual production in both countries is around 2 million tonnes, with about 1–1.5 million tonnes coming from India. India is the largest producer and exporter of Basmati rice with about two thirds of the production being exported. Basmati rice is grown exclusively in the northern part of Western Punjab (on both sides of the Indo-Pakistan border), Haryana and Uttarakhand. Haryana accounts for around 50 percent of the area under basmati rice in India, followed by Uttarnachal and Uttar Pradesh (earlier the joint state of Uttar Pradesh) with 25 percent and Punjab with 18 percent, see Table 1. The productivity of Basmati paddy in India is around 1 400–2 100 kg per hectare against the yield of non-basmati paddy of 4 500–5 000 kg per hectare. Some commonly known traditional Basmati rice varieties in India are Basmati-370, Basmati-386, Type-3, Taraori, Basmati (HPC-19), Basmati-217 and Ranbir Basmati (IET-11348). Evolved Indian Basmati varieties include Pusa Basmati-1 (IET-1064), Punjab Basmati-1 (Bauni Basmati), Haryana Basmati-1 (HKQ-228/IET-10367), Mahi Sugandhi, Kasturi and Super Basmati.

Table 1: Districts of India cultivating Basmati rice

States	Districts
Haryana and Punjab	Karnal, Panipat, Kurukshetra, Kaithal, Amritsar, Fatehgar, Gurudaspur, Hoshiarpur, Jalandhar, Patial, Sangrur, Ropnagar
Himachal Pradesh	Kangra, Solan, Una, Mandi, Sirmour,
Rajasthan	Bundi
Uttar Pradesh	Saharanpur, Muzaffar nagar, Pilibhit, Bareilly, Bijnour, Moradabad, Jyotibaphule Nagar, Rampur, Raibereily, Sitapur
Uttarakhand	Udham Singh Nagar, Haridwar and Dehradoon
Jammu & Kashmir	In lesser quantities in some areas

The Multi Commodity Exchange of India (www.mcx.com) presents a good snapshot of Basmati rice production and exports from India. In the international market rice is traded under two main categories: fragrant and non-fragrant. In case of fragrant rice, India dominates the trade with its Basmati rice followed by Pakistan. Basmati rice is the leading aromatic fine-quality rice of the world trade and fetches a good export price in the international markets. Basmati exports from India peak during March–April and November–December. In 2001–2002, Basmati rice accounted for 0.89 percent of India's total exports, 6.24 percent of agricultural exports, 36.96 percent of food grain exports and 58.14 percent of rice exports. The Gulf Region is the major market for Indian Basmati rice and within the Gulf Region, Saudi Arabia accounts for the major share of Basmati rice imports from India (accounting for two thirds of exports). The European Union is the next important market for Indian Basmati rice followed by North America. Since Pakistan is the only other producer, it is the sole competitor for India in the international market for Basmati rice.

2.1 Factors affecting prices of Basmati rice

Weather has a profound influence on the production and the monsoon plays a key role in its production and productivity. Since Basmati rice has a big export orientation, import demands from other countries affect prices considerably; the economic performance of importing countries, overall sentiments in the rice market and the supply of Basmati rice from Pakistan also affect the international market. On the domestic side, the Indian Government's export–import policy and domestic consumption patterns also impact on the price of Basmati rice.

3. UTTARAKHAND ORGANIC COMMODITY BOARD

3.1 Background of the organic movement in Uttarakhand

Uttarakhand is a newly formed state in North India consisting of the hill regions of Uttar Pradesh. The Uttarakhand Organic Commodity Board (UOCB) is a state initiative to promote organic agriculture in the state of Uttarakhand. The formation of UOCB is best understood in the light of the organic movement in India and in the region. Generally speaking, organic farming has been practiced in several parts of India for a very long time. In hilly and far flung areas, where it is not easy to access chemical inputs, farming is organic by default. A conscious move towards organic farming is more recent, largely driven by the deteriorating soil conditions and premiums on organic produce. In the areas implementing the green revolution, the use of chemical fertilizers increased immensely. The green revolution was very valuable in enhancing productivity, but the high use of chemical fertilizers has severely affected the quality of soils. Long-term sustainability of agricultural production under deteriorating soil conditions is a big concern. Moreover, high use of fertilizers is also very expensive, as the yields will not increase in accordance with high inputs because there are diminishing returns to scale after a certain level of input use is reached. Agricultural growth is at an all-time low of 1.8 percent. In this situation, for long-term sustainability of agriculture it is important to emphasize on low-input sustainable agriculture and a move towards organic agriculture is a step in this direction. Consequently in recent years, there has been increasing emphasis on organic farming in India.

The first move towards organic farming in India started in 1993 at Jawahar Lal College of Agriculture in Indore, Madhya Pradesh. In Uttarakhand, a formal programme to support organic farming started with the initiation of the World Bank's Diversified Agricultural Support Programme. Three districts – Nainital, Dehradun, and Udham Singh Nagar – were selected for the organic village programme. Since then, several initiatives by different agencies and NGOs have been undertaken in this region. When Uttarakhand was established as a new state in the year 2000, the new government gave a high priority to organic agriculture. The Uttarakhand Organic Commodity Board (UOCB) was set up to bring the various organic programmes in the state under one umbrella to spearhead the organic movement in Uttarakhand. With the ongoing initiatives in organic agriculture, Uttarakhand has carved a niche for itself as an "organic state" with a "fresh mountain product" appeal.

3.2 Background of UOCB

This section draws on the information about the organization available online at www.organicuttarakhand.org. The Uttarakhand Organic Commodity Board was established on 19 May 2003. The board was registered under the Societies Registration Act of 1860 and is acting as the nodal agency of the state to enhance organic activities in agriculture and allied sectors like horticulture, medicinal aromatic plants and herbs, and animal husbandry throughout the state. As the nodal agency for promoting organic agriculture in the state, the functions of UOCB are manifold: serving as the advisory agency to the state department for development of organic infrastructure; initiating, supporting and nurturing institutions to develop backward and forward linkages for organic farming; conducting research on all aspects of organic produce to make available a database of activities; collaborating with other national and international agencies for promotion of organic agriculture in the state. Currently several commodities such as rice, pulses, spices, cereals are organically grown and sold. Organic Basmati rice contributed to about 50 percent of the total sales of INR9.5 million (approximately US\$237 500) in the financial year 2005–2006. Currently, UOCB has 25 000 registered farmers with 11 000 hectares under organic certification.

Along with the larger role as the state nodal agency, UOCB is closely involved in developing all aspects of the marketing chain including providing training to farmers, ensuring availability of quality inputs, managing the internal control system (ICS) to support the certification process, building post-harvest infrastructure for storage and processing and developing marketing linkages. Details of all these steps in developing the organic basmati rice marketing chain are discussed in the next section.

The Center for Organic Farming (COF) is a programme funded by the Sir Ratan Tata Trust and anchored within the UOCB. Conceptually COF is an independent body, but the administrative functions of COF are operated from within UOCB. COF provides assistance to the on-going organic initiative, primarily in the form of technical expertise and human resources. The Organic Basmati Export Programme (OBEP) is a major component of the COF project, which has focused on developing the marketing chain for exports of organic Basmati rice.

3.3 Activities of UOCB and COF

Capacity building. UOCB has trained farmers, extension workers from government line departments and NGOs in all aspects of organic production including certification and marketing of organic produce. UOCB has organized exposure visits for farmers, middle- and senior-level officers to seminars, exhibitions and other gatherings in the organic sector.

Facilitator for developing backward and forward linkages. UOCB develops production plans according to market demand and delegates the plans to the different production agencies – organic villages run by the agriculture department or the different partner NGOs. The organic farmers are then assisted to form organic producer groups and to link with markets.

Implementing the internal control system. ICS is set up by the organization as a mechanism to support the certification process. ICS works with the farmers to ensure proper documentation of the procedures required by the certifying body. This means that the third-party certification bodies only have to ensure the well-functioning of the system, and perform a few spot-check re-inspections of individual smallholders (as discussed in detail in the next section).

Provide technical support. UOCB functions as the resource centre for the technical inputs of organic production, knowledge that is constantly being updated. Inputs which can be used as per standards compiled by the board, new products and technologies for organic production and then information are passed on to the different stakeholders in the state.

UOCB is involved in resource generation in the form of funds, human resources and building patronage for the organic development for the state. The Board also contributes to the development and incubation of ideas, products as well as future strategies.

4. ORGANIC BASMATI RICE MARKETING CHAIN OF UOCB

UOCB is currently working in an area of 2 024 ha with 2 200 farmers for organic rice production (approximately 0.9 ha/farmer). The organic Basmati rice from Uttarakhand is third-party certified. Certification for organic produce requires strong monitoring and control through the chain. The entire crop can be rejected if the produce does not meet the quality requirement. A team of UOCB technical experts works closely at the farm level to ensure compliance with all aspects of organic farming. This section gives a detailed description of the monitoring and control of quality through the supply chain, starting from selection of farmers, availability of quality inputs, production, grading, packaging, and exporting.

4.1 Maintaining quality through the supply chain

Selection of farmers for organic farming

Site selection. The farm should not be located downhill as there are higher chances that uphill use of chemicals and fertilizers by other farmers will get mixed in the area of the organic farm. If there are polluting industries close by like a brick manufacturing facility, this is also likely to enhance chances of rejection as organic.

Mentality. Farmers' attitude towards organic agriculture is important. If they believe in the concept then they are more likely to stick to this method.

Trustworthiness. As is experienced in most other cases of contract farming, even when there is a written contract, trust is an important issue in the relationship between farmers and coordinating agencies. Testing for quality compliance is not possible every time as these methods are time consuming as well as expensive. Constant monitoring of all farmer actions is not possible. High level of trust in farmers reduces the transaction costs of monitoring.

Quality of inputs

The board is in charge of ensuring availability of quality seeds to the farmers. Based on the demand for the next season, seed production for a specified surface is contracted to certified farmers under technical guidance and supervision of experts from UOCB and the Seed Certification Agency of Uttarakhand. After production, other tasks including grading, processing and packaging of seeds are also conducted under supervision of the Seed Certification Agency. The seeds are processed at the seed processing plant located regionally and supplied to the farmers working with the organization. Quality specifications for seed include size of the grain, and insect-free or pest-free seed production. Farmers participating in OBEP use home-made inputs. In case of use of off-farm inputs such as Trichoderma, Pseudomonas, B.T., UOCB is involved in ensuring the availability of certified organic inputs which are sanctioned by the certification agency.

Technical assistance at farm production level

One of the checks maintained in the field is that the same variety of Basmati rice grown under organic production cannot be grown as conventional Basmati rice, a different variety has to be planted. There are extension agents to provide technical support for production practices and to monitor the production process. There is one field officer per block (a district consists of several blocks), managing approximately 300 farmers.

Training regarding modern composting techniques is also provided to the farmers. Earlier the farmers followed traditional composting methods, which took 8–10 months. UOCB has now introduced modern vermicomposting and introduced composting methods that have allowed the

composting time to be reduced to 2–3 months. UOCB is not directly involved in soil testing but farmers' federations, buyers or field demonstration heads assist the farmers in soil testing. The NADEP method of producing compost is also used. The NADEP method of making miracle compost was first invented by a farmer named N.D. Pandharipande (also popularly known as "Nadepkaka") living in Maharashtra State of India. The method, which has become quite popular among the farmers in western India, now bears his name. Details about this method of composting can be found at <http://planning.up.nic.in>. Some farmers are using the System of Rice Intensification method (SRI method) for producing organic Basmati rice. In this method transplantation of paddy starts 12 days after sowing; seed and water requirements in this method are very low. The clapping method to remove stem borers is also a common practice of organic farmers. This is a traditional approach, which has not been scientifically validated, but seems to be working well on the ground. In effect the farmers gather in the fields and create a lot of noise by clapping. This helps to control the damage by stem borers. Further research on the scientific underpinning of this technique needs to be undertaken.

Harvesting, threshing and storage

The quality control process continues during harvesting and threshing. Thorough cleaning of equipment is a must to ensure quality and avoid adulteration of organically grown rice with conventional produce. Threshing is done carefully using manual labour. During storage also, the key consideration is cleanliness and avoiding mixing of organic and inorganic produce. Mixing with traditional produce can cause rejection of the crop. UOCB has promoted 11 warehouses for storage of organic crops under organic certification.

4.2 Certification

Third-party certification is important to ensure quality and gain consumer confidence regarding authenticity of produce. Third-party certification implies that the seller (first party) or the buyer (second party) are not be involved in the certification. A neutral third party has to do the certification. In India, only agencies accredited by the Agriculture and Processed Foods Export Development Agency (APEDA) can carry out third-party certification. Initially international firms like IMO and ECOCERT were certifying bodies for UOCB. As mentioned above, UOCB has installed an internal control system to allow farmers to become certified as a group and make the task of certifying easier for the certifying agencies. By definition, an ICS is "a documented quality assurance system that allows the external certification body to delegate the annual inspection of an individual group to an identified body within the certified operator" (IFOAM, 2003). Documentation and different legal forms describe the certified operators' management structure. In the case of UOCB, the ICS has carried out the following:

- An internal regulation manual has been developed;
- Farm files have been developed, printed and distributed to field motivators;
- A farmer's diary has been developed, printed and distributed to farmers;
- An inspector report format and a checklist have been developed;
- A systematic and well designed code system has been developed;
- Farmers, organic villages, districts and projects have been coded.

One of the major issues in promoting organic farming is the high cost of certification. To overcome this constraint, the Government of Uttarakhand has established the Uttarakhand State Seed and Organic Production Certification Agency (USS & OPCA). The ICS developed by UOCB helps USS & OPCA and other certification bodies to carry out direct inspection of farmers; it also allows the certification of small landholders who cannot afford to pay the high individual certification fee. According to the National Organic Guidelines, certification agencies cannot get directly involved in training and documentation through their extension team.

In a study on costs associated with organic production and certification, Santacoloma (2007) presents a detailed description of the costs associated with organic certification. The overall cost of implementing projects and schemes for organic certification have three major cost component:

- Costs associated with production;
- Costs related to certification; and
- Marketing costs.

At all these three levels, there are initial setup costs as well as maintenance costs. Along with these costs at the project level, there are costs at the individual level as well. Based on the above-mentioned study, a detailed description of all the costs at the project level are presented in Table 2. The study also estimates that the ongoing costs at the project level for UOCB are US\$238/ha/year. As mentioned earlier, these are costs involved at the project level. Costs incurred at the farm level in terms of loss of productivity, are not included in these costs.

4.3 Marketing

UOCB also supports the farmers in providing market linkages. Currently, the marketing tie-up is with Kohinoor Foods and KRBL Rice. Earlier the tie-up was with Tea Group for one year. The farmers are involved in making decisions regarding the tie-up. The purchase price is fixed. Last year the price was INR2 200 per quintal, this price will increase by INR50 per quintal per year for the next two years. The price for Basmati rice going to the traditional market is approximately INR1 300 per quintal.

It is important to note that during the conversion period, the prices that the farmers are given by UOCB are higher than the prices paid for the conventional Basmati rice although lower than those for the organic Basmati rice. This high price is given to farmers as an incentive to support the organic movement. It is important to mention here that the European Union and the United States of America have different standards for organic produce, which can sometime cause problems in marketing. Produce of UOCB farmers comply with both standards.

Table 2: Costs involved in organic certification at project level

Setting up costs	Ongoing costs
PRODUCTION	
<ul style="list-style-type: none"> • Project planning: cost of project design and setting up the required business support and technical services • Technology development: costs associated with developing field technology directly at the farm by using participatory methods • Training and extension: costs of developing training materials and staff time associated with providing farmer training • Cost of conversion: in some cases, project managers pay a premium during the conversion period to support the conversion process 	<ul style="list-style-type: none"> • Technical development and ongoing training
CERTIFICATION	
<ul style="list-style-type: none"> • Establishing farmer's groups: as a condition to establishing an ICS, a legal organization should be in place with a documented description of the management structure and internal regulations • ICS establishment: these costs cover development of farms and farm visits in order to gather information for ICS 	<ul style="list-style-type: none"> • Certification fees: the annual certification fees are often paid by the organization or project supporting organic farming; in this case, UOCB pays these certification costs

<p>documentation, farm pre-inspection and assessing farmers' training needs</p> <ul style="list-style-type: none"> • Training: this refers to particular training on standards and regulations of personnel, internal inspectors and farmers <p>Record keeping and accounting system: this refers to costs for preparing documentation and collecting information at the farm level for internal and external inspection</p>	<ul style="list-style-type: none"> • Monitoring and social networking: these include participation in seminars, peer review visits to farmers, and direct marketing in fairs, which imply transport and time costs
MARKETING	
<ul style="list-style-type: none"> • Marketing planning: all marketing activities and costs are closely related to the type of certification, certification body appointed and type of markets targeted 	<ul style="list-style-type: none"> • Marketing skills development: costs are associated with participating in national and international fairs in order to research demand requirements or install new shops

Source: adapted from Santacoloma (2007)

5. MARGIN ANALYSIS OF FARMERS WORKING WITH UOCB AND FARMERS SELLING TO THE TRADITIONAL MARKET

In assessing the impact of the project it is important to compare the group of farmers working with UOCB with the group of Basmati rice growers who sell their produce to the traditional markets. Table 3 presents a comparison of the gross margins of growers involved in organic and conventional Basmati rice production. This table presents an overview of the variable costs involved. Along with this, there are some fixed costs associated with initiating an organic farm, in preparing the pit for vermicomposting and related costs.

Table 3: Gross margin in INR per hectare for organic and conventional Basmati rice growers

Item	Conventional			Organic		
	Quantity	Unit cost	Total cost	Quantity	Unit cost	Total cost
Labour*						
<i>Nursery preparation</i>	37	100		37	100	
<i>Land preparation</i>	12	100		12	100	
<i>Transplanting</i>	30	100	3 000	30	100	3 000
<i>Weeding</i>	10	50		49	100	
<i>Water</i>						
<i>Harvesting and threshing</i>	74	100		74	100	
Seeds	30	26	780	30	26	780
Seed treatment			247			124
NPK			2 471			
Vermicompost and plant protection**			618			2 471*
Total cost			7 116			6 375
Yield	20 quintal			20 quintal		
Price/kg	13			22		
Gross margin (based on assumptions)	18 626			37 158		
Returns to labour/day	114			184		
* Mostly family and exchange labour is used, except in the case of transplanting when hired labour is used						
**Assuming that only INR2 471/ha is spent on purchase of non-farm inputs such as manure and plant protection, while the rest of inputs are on farm inputs						

Table 3 presents an overview of the costs and returns for traditional as well as organic Basmati rice production. As is evident, labour is the major cost in Basmati rice production. Hired labour is used mostly for transplanting whereas exchange of labour between households is the norm for other cropping activities. Organic Basmati rice production has a higher labour input because of manual weeding. In the case of traditional Basmati rice production, other inputs include seeds and seed treatment, NPK fertilizer and plant protection. In the case of organic basmati, apart from seeds, vermicompost is a major requirement although most of this requirement is met from the farms' own organic matter. Approximately INR2 471 is spent on purchase of manure and other plant protection equipment such as pheromone traps. Based on these considerations, the

cost of production in the case of organic Basmati rice is INR6 375 per hectare and the same for conventional Basmati rice is INR7 116. Note should be taken that only cash inputs purchased have been used in calculating input costs, own and exchange labour and own manure have not been accounted for.

The farm price offered by traditional traders for conventional Basmati paddy is INR13/kg. In the case of organic Basmati paddy the purchase price has been fixed with the current buyer at INR22/kg. Based on the cost of production and the farmgate price, gross margins and returns to household labour were calculated based on the labour used for each production type. Despite having higher labour usage for weeding, the return to labour per day is higher in the case of organic Basmati rice by INR70/ha/day above that for conventional Basmati rice production. Furthermore, producers of conventional Basmati rice also have to bear the marketing costs typical in the traditional market which include market taxes, a commission to the traders; discrepancies in weighing also significantly affect the prices received by the farmers. While comparing the gross margins of the conventional and organic rice producers it is important to bear in mind that margins of the organic producers might be overestimated because of non inclusion of fixed costs and certification costs, which are currently borne by the UOCB.

5.1 Long-term benefits

In the case of organic farming focusing only on short-term gains is not enough. The long-term health of the soil is important for sustainable and profitable farming over the years. Increasingly higher costs of production because of chemical fertilizers and stagnant yields have led to deteriorating earnings of farmers.

Not only is organic farming better for the producer, the benefits of organic farming for the consumers are also very obvious. The large-scale reporting of misuse of chemicals and pesticides and high levels of pesticide residue also have a very detrimental impact on consumer health.

Apart from gross margins, risk is another key aspect that affects farm level profitability. Table 4 shows the risk analysis between farmers working with UOCB versus farmers selling to the traditional market. The third column shows whether the risk for UOCB farmers is higher, lower or same as the risk borne by traditional farmers. Risks related to weather-related issues and biological pests, financial risks are reduced in the case of the farmers working with the organization as they have support on these fronts. As discussed above, risks from price fluctuation are minimized because the prices are fixed by the buyer in the case of organic Basmati rice.

Table 4: Risks analysis for farmers working with UOCB and farmers selling to the traditional market

	UOCB farmers	Comparison of risk: increased (↑) minimized (↓) same (↔)	Farmers selling to traditional market
Weather- or drought-related risks	This risk is minimized as the extension agents associated with UOCB are in touch with the farmers. In case of an expected weather outbreak or change, they inform the farmers to take the necessary action.	↓	The farmers themselves have to decide what to do in a critical situation.

Risk from short-term commodity price fluctuation	This risk is also minimized as a minimum support price is fixed for the UOCB farmers.	↓	Farmers selling to the spot market have to bear the brunt of fluctuating market prices.
Risk from long-term price fluctuation		↔	
Asset risks	There is no provision for asset risk management.	↔	
Financial risks (loans and credit)	UOCB can be involved in arranging the loans between the financing company and farmers. These farmers will probably have more leeway in the case of a default.	↓	Farmers have to face the financial risks on their own.
Exchange rate risks	In this case, the price of rice is fixed in rupee terms. The exchange rate risk is borne by the marketing company.	↔	
Risks of poor or deficient information	This risk is minimized as the UOCB extension workers inform the farmers if a disease outbreak is expected.	↓	Information gathering depends on the initiative of the farmer
Biological risks	These risks are also minimized as the company extension agents are scouting the fields regularly.	↓	
Legal and governmental risks	Currently, there are no regulations in the country. Consequently the risk of defaulting on the contract and legal implications are not very high.	↔	
Farm management risks (impact on technical production systems)	Organic farming has a positive impact on soil sustainability.	↓	Continuing to use chemical fertilizers indiscriminately can have a negative impact on soil in the coming years.
Personal Risks	NA	↔	

Note: NA = Not applicable

6. ISSUES RELATED TO ORGANIC FARMING

Organic farming is gaining momentum in India and several new initiatives and projects to promote organic farming are being launched. Hence it is important to take a closer look at the issues regarding adoption of organic farming, especially for the small and marginal farmers. It is widely recognized that it is not easy for small and marginal farmers to convert to organic agriculture. There are some initial costs involved in setting up an organic farm. As mentioned earlier, in the initial periods of conversion, yield is lower and the produce cannot be sold as organic so there is no premium. For a farmer who is surviving only on 0.5 to 1 ha of land, getting a lower income for 2–3 years is not a financially viable option. The farmer cannot bear the initial income losses involved in conversion. Likewise, there are further costs associated with certification and marketing, which are often borne by project sponsors.

During the survey for this study, discussion with some small and marginal farmers highlighted that among other reasons, conversion to organic is difficult as they do not have cash to pay labourers for the extra weeding. The payment to labourers usually is made in kind. Because of the high value of organic Basmati rice, it cannot be given as in-kind payment. It is observed from the field surveys that large farmers start converting small plots of their land to organic in successive phases of 2 to 3 years. This ensures that their income does not change significantly during the conversion period as they keep a steady income from the land under conventional farming methods.

On the other hand, there are some factors that work in favour of small farmers converting to organic farming. Availability of manure is an important requirement for organic farming. Small farmers can meet this demand with their own animals. Large farmers with larger plots under organic are likely to be constrained by the amount of manure available at the household level, and might have to purchase manure which will affect the cost of production. Also, once the farmers recognize the overall benefits of organic farming in long-term sustainability of the soil they will take the initiative to convert to organic farming. In the case of small farmers, a special focus is needed on training for organic farming and developing marketing linkages. With a more detailed study of issues and constraints faced by the small farmers in undertaking organic farming, appropriate incentive packages can be developed to involve more small farmers in organic farming.

Some other issues regarding involvement of small and marginal farmers in organic farming include pricing of organic crops (Singh, 2006). There is no specific price discovery mechanism for organic produce, since it is a niche market. The price is not linked to the final price fetched in the export market. Rather, the price for organic produce is a premium over the conventional crop. Another issue relates to the ownership of the organic certificate. Often times, the ownership of the certificate is with the companies who are coordinating the marketing. Thus, if the farmer decides not to sell to the companies, he or she can no longer sell their crop as certified organic.

Another aspect of organic farming in India is the project mode for promoting organic farming. Several approaches are being followed: state projects such as the one developed in Uttarakhand, projects implemented through NGOs, and support to the private sector to undertake such initiatives. The State of Uttarakhand has set an example in taking forward organic farming in the state. Many other states are also following the example and are taking initiatives to undertake organic farming projects at the state level. It is important to understand the costs and benefits of undertaking such projects with different implementing agencies. The positive impact of a state level initiative is that projects can be undertaken on a larger scale. However, the overhead costs of the project are likely to be quite high.

Another option is to undertake projects with NGOs. The advantage of this approach is the small and focused activities that are likely to be more cost effective. The downside is that such efforts are likely to be regional and cannot be scaled up easily. Also, not all NGOs perform well at the ground level. As far as the private sector is concerned, the main approach has been to give support to the private sector to initiate such projects through a subsidy to pay the costs of organic certification. The limitations in this case are that the private sector will get involved only in progressive areas and with resourceful farmers who can easily meet the quality requirements of their customer. Another issue is that sometimes the subsidies do not get transferred to the farmers. Providing support to the private sector for promoting organic farming is required at least in the short run. However, steps can be undertaken to monitor these projects closely in order to ensure that the farmers get some benefits. Some norms for involving a specific number of small and marginal farmers can also be set up. Overall, no one approach will be enough to take forward organic farming in a large country like India. More combinations based on the strengths and weaknesses of the approaches can be explored.

7. LESSONS LEARNED AND WAY FORWARD

The State of Uttarakhand has set an example for promoting organic agriculture at the state level. The project covers all aspects of setting up the marketing chain for organic farming including identifying farmers for organic farming, providing quality inputs and technical assistance at the production level, and developing linkages for marketing. In this case, Kohinoor rice and KRBL are the marketing companies which procure from UOCB farmers and sell in the international market. Certification is a very important aspect of organic farming, especially to access the export market. UOCB has developed an internal control system to support the third-party certification process. It was evident that the farmers selling to the Board get a premium over the conventional Basmati rice farmers. Also, since the prices are fixed for a three-year period, the price risk is low. Apart from the price risk, biological and weather risks are also lowered, because of technical backstopping by experts, which helps to minimize production losses. Obviously, farmers involved in this programme have benefited from participating in the marketing chain created by UOCB.

Going forward, there are issues with organic farming, which need more attention. Specifically, detailed farm level analysis needs to be undertaken in the case of small and marginal farmers to understand the issues related to conversation at the ground level. These insights are necessary as the number of projects for the promotion of organic agriculture in the country is likely to increase.

Some other issues which need attention from the institutional perspective include:

- Price discovery mechanisms for organic produce;
- Farmgate prices linked to prices in the export market;
- Ownership of organic certificates; and
- Support to strong producer organizations.

Finally, regarding the implementation of the projects, the various approaches include state agencies such as UOCB, NGO-supported projects and support to private sector initiatives in promoting organic agriculture. There are benefits and costs associated with each approach. No one approach will be effective in promoting organic agriculture. Appropriate models will be based on crops and location, and the socio-economic status of the farmers.

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