

# Scaling Up Sustainable Agriculture in Balaghat

ARJUN PANDIT AND CHANDAN SARMA

*Describing the sustainable agriculture practices being promoted by the Balaghat team, this article captures the processes employed for promoting sustainable agriculture with more than 3,500 farmers, the challenges faced and the major insights gained*

## INTRODUCTION

In our earlier article called 'Organic Farming in Balaghat: Power to the Community, Power to the Farmer!' (NewsReach May-June 2013; Vol. 13), we said that the team had begun its intervention by extensively promoting chemical-based agriculture in both paddy and vegetable cultivation from 2008 onwards. Based on experiential learning in the first few years, from 2009 to 2011, in pockets of more than 20 villages where agriculture was promoted through organic and integrated approaches, a change in perspective took place and the team began to believe that an alternative and a more sustainable agriculture practice promotion, which may be more compatible with the cultural practices of the community in the area, was possible.

The community had always practised farming, based on natural organic inputs such as cow dung, organic matter and the use of medicinal leaves such as *neem* and *laltain*. These experiments also helped dispel our notion that productivity would be compromised once the approach were to shift from chemical-based farming to organic farming. The professionals in the team were oriented, through various exposure visits and training programmes, particularly with Center for Sustainable Agriculture and Chetna Organic (both Hyderabad-based organizations). Additionally, the community was taken on exposure visits to organic farms in Maharashtra, and organic *melas* were organized in several villages by SHGs, with the support of the PRADAN team, to make the community aware of sustainable farming. Rigorous on-field, as well as class-room, training was provided to the support staff in all villages, to help disseminate knowledge about sustainable agriculture.

In the early part of 2013, more than 400 women farmers from 25 Clusters were taken for an exposure visit to the farm of Subhash Sharma in Yawatmal district of Maharashtra. Mr. Sharma is a pioneer in natural farming in the area. This experience, along with visits to the organic *melas* at three different places, helped build momentum for the intervention during the *kharif* season. Awareness building among the community was followed up with intensive training of agriculture

Service Providers (SPs) in the philosophy and the technical nitty-gritties of organic farming.

A timeline was set; the professionals and the Community Service Providers (CSPs) divided the villages in the area so that the first phase of concept-sharing was done well in advance of the monsoon. The main focus was to bring about a complete transition from integrated (mixture of organic and chemical practices) to organic practices in vegetable cultivation, and more intensive organic practices in paddy, to

*The main focus was to bring about a complete transition from integrated (mixture of organic and chemical practices) to organic practices in vegetable cultivation, and more intensive organic practices in paddy, to lower the dependency on chemical fertilizers and pesticides, and to use high-yield, improved variety of seeds, and indigenous seeds*

lower dependency on chemical fertilizers and pesticides, and to use high-yield, improved variety of seeds, and indigenous seeds.

Interestingly, the indigenous paddy promoted last year through improved practices by about a hundred farmers also yielded exciting and eye-opening results, with a huge potential of looking at the whole picture of agriculture in a more holistic way.

### **INTERVENTIONS DURING KHARIF 2013**

#### **Deep ploughing and green manure:**

Subsidized deep ploughing and green manure promotion was encouraged under the MKSP project. Over 2,000 farmers were covered under both (union and intersection) interventions. Deep ploughing helps eradicate larvae and harmful worms of the previous agriculture cycle by exposing the soil to the summer heat. There was, however, very little success on the green manuring front because the rains came very early (15 days before the

The Balaghat team of PRADAN was started in 2008. The team is currently working in two blocks, namely, Paraswada and Balaghat Sadar, with the Schedule Tribe (ST) Gonds, the Particularly Vulnerable Tribal Groups (PVTG) Baigas and Other Backward Castes (OBC) Pawar, Marhar and Ahir communities. The outreach is 7,000 families in 165 villages. The area has about 60 per cent forest cover, with undulating terrain. Low accessibility and widespread poverty is the characteristic feature of the villages that PRADAN is engaged with. The PRADAN team has been the implementing agency for the Mahila Kisan Sashaktikaran Pariyojana (MKSP) in these two blocks. The focus of the project is on the concept of the *mahila kisan*, or the woman farmer, helping her build skills and introducing her to sustainable agriculture. At the core of organic agriculture is sustainability vis-a-vis economic profitability and social equity (farming independency), which has also been the guiding principle of the team. As such, the project was very much in tune with the approach of the team.

expected date). The farmers had to prepare their fields when the plants were in their inception stage.

**Seed management:** Seed treatment involves treating the seeds with organically prepared *beez amrit*, commercially available trichoderma or simply treating the seeds with turmeric, *chuna*, and soil from termite mounds mixed with cow urine. The separation of low-quality seeds from better ones through the salt-egg approach was followed for paddy. SRI practices (both paddy and vegetable), and SRI-allied practices such as reduced sapling rates (paddy) in traditional practice and regular weeding were adopted.

**Soil management:** In organic practice, the soil is treated as a living entity with high microbial activity. Interventions such as vermi-compost, improved composting, *jeev amrit* and *matka khad* are taken up with farmers. The application of *jeev amrit* when preparing the field for paddy, just before transplantation, was initiated last year. The farmers were given hundred litre capacity drums to prepare *jeev amrit* (for 2,500 farmers) under the MKSP project. *Matka* (earthen pots) were used widely in the preparation of the *matka khad*, which is now extensively used in vegetable cultivation in the area. The optimum nutrient requirement in a patch of half an acre entails four to five

doses of *jeev amrit* application (100 litres) beginning from the day of transplantation and followed up every 12–15 days. It takes five to six days to prepare *jeev amrit*, and the manure can be used in both the paddy and the vegetable patches. In paddy fields that have sufficient stagnant water, it can be used directly; in vegetable fields and up-land paddy fields that have negligible water retention in the fields, it needs to be mixed with four portions of water before using.

- ♦ **Pest management:** Pheromone traps (under the MKSP project), *neem kada* as the initial pest preventive measure, *agni astra* as the intermediary pest control and commercially available *neem* oil as the final pest control measure have been introduced.
- ♦ **Neem kada as a preventive pest spray:** One kilogram of neem leaves is boiled with four litres of water. The solution is boiled until it is reduced to one litre. The leaves are removed and the *neem kada* is added to 10 litres of water and can be used in a 10 decimal vegetable patch. This solution needs to be sprayed five times during the cropping, beginning about 10 days after transplantation with an interval of 10–15 days.

**Table 1: Agni Astra Preparation**

No.	Particulars	Purpose of components	Quantity
1.	Water	Base	10.0-15.0 litres
2.	<i>Neem</i> leaves	Pesticide value	1.0 kg
3.	<i>Dhatura</i> leaves	Pesticide value	1.0 kg
4.	<i>Besaram</i> leaves	Pesticide value	1.0 kg
5.	<i>Laltain</i> leaves	Pesticide value	1.0 kg
6.	Chilli	Pesticide value	0.25 kg
7.	Garlic	Pesticide value	0.25 kg

In paddy cultivation of one acre, nine litres of *neem kada* are mixed with 90 litres of water and the solution is sprayed three or four times, beginning 15 days after transplantation, and then at an interval of 15 days.

*More than 3,500 farmers adopted organic practices in agriculture in the last kharif season. In several villages, no expenditure was incurred on the purchase of chemical manure or on pest management*

## THE SUSTAINABLE CHANGE

More than 3,500 farmers adopted organic practices in agriculture in the last *kharif* season. In several villages, no expenditure was incurred on the purchase of chemical manure or on pest management. In about five per cent of the 150 villages where this intervention was

- ♦ **Agni astra as pest control**

The above mixture is boiled until three-fourths of it evaporates. The remaining solution is then cleansed of the solid leaves and used. *Agni astra* is used when pests start appearing in the farm plot. For an acre of paddy, approximately 5 litres of *agni astra* mixed in 90 litres of water is used. The solution is sprayed at an interval of 10–15 days, based on the presence of pests in the crops. In vegetable crops, in an area of 10 decimals, half a litre of *agni astra* solution mixed in 10 litres of water is used as a pest control measure.

- ♦ **Neem oil as final control measure:** A five per cent solution of *neem* oil can be used as pest control in both paddy and vegetable cultivation. The quantity of the mixture is similar to that of the *agni astra*.

introduced, there has been a complete shift from chemical and integrated practices to the organic approach. Villages such as Salghat, Sawarjhodi, Bhikewada and Madanpur have completely shifted to organic farming, both in vegetable as well as in paddy cultivation. In other villages, the use of urea and DAP has declined considerably, ranging from 30 per cent to 70 per cent, based on a random sampling by SHGs. A more integrated approach is being used by the community.

The average production in places where farmers have adopted the integrated approach, encompassing both organic inputs and limited chemical inputs, remains comparable to the chemical fertilizer-driven production and, in some cases, has gone up when compared to the previous years. Farmers have been able to get optimum production from their land. The last *kharif* crop saw planning and intervention not only in farms where SRI, or the improved variety, was adopted, but in all plots.

**Table 2: Thumb Rule for Pest Management**

Type	Purpose	Solution Percentage	Per Acre Need
<i>Neem kada</i>	Preventive	10%	90 litre water solution
<i>Agni astra</i>	First line of attack on pests	5%	90 litre water solution
<i>Neem oil</i>	Final line of pest attack	5%	90 litre water solution

Table 3: Analysis of Production Yield of 10 farmers in Balaghat in Paddy Cultivation

No.	Name of Village	Name of Farmer	Type of Irrigation	Area under SRI (Acres)	Name of Paddy Variety	Organic or Integrated Practice	5 m x 5 m, Production (in Kg)	Production (Quintal/ Acre as Per 5 m x 5 m Measurement)	Traditional Practices Production (in Quintals)	Actual Per Acre Production (in Quintals)
1.	Batwa	Savanbai/Rupchand	Unirrigated	0.5	IR-64	Organic	9.3	37.2	6.0	15.0
2.	Batwa	Sushila/Rulal	Unirrigated	0.5	IR-64	Organic	8.4	33.6	6.0	14.0
3.	Amoli	Satula/Gariba	Unirrigated	2.0	MTU-1010	Organic	10.5	42.0	6.0	14.0
4.	Amoli	Rukhamini/Tarrachand	Unirrigated	1.0	MTU-1010	Organic	10.0	40.0	7.0	12.0
5.	Amoli	Sadhana/Devsingh	Unirrigated	1.0	IR-36	Organic	9.4	37.6	6.0	13.0
6.	Takabrra	Hiran/Vimalesh	Unirrigated	1.0	MTU-1010	Integrated	12.0	48.0	8.0	19.0
7.	Kewa tola	Kapoor/Ujkey	Unirrigated	1.0	Kuber	Integrated	-	-	7.0	16.0
8.	Jheeriya	Rashmi/Chetsingh	Unirrigated	0.5	Safari (indigenous seed)	Organic	5.5	22.0	6.0	11.0
9.	Korja	Mantura/Chainsingh	Unirrigated	0.7	Pililuchai (indigenous seed)	Organic	-	-	6.0	13.0
10.	Badgaw	Doliya/Sumansingh	Unirrigated	0.5	Pililuchai (indigenous seed)	Organic	12.0	48.0	8.0	16.0

Organic farming opens the door for intervention in each and every type of crop, irrespective of the technique adopted for nursery raising or transplantation.

An yield estimation under agriculture intervention (both completely organic and integrated practice) was carried out with 200 farmers, with the support of the District Agriculture Department. Agriculture Development Officers and other officials of the Agriculture Department visited the villages, interacted with the farmers and captured the crop production, using statistical methods. Table 3 gives a detailed analysis of the production yield of 10 farmers.

#### INDIGENOUS SEEDS: A NEW DAWN?

As reported in the last article, indigenous seeds, which are highly resistant to disease and are capable of high yields, are now being promoted actively across the villages. This intervention has been very successful with vegetable crops—several varieties of indigenous brinjal, chili, beans, tomato, *barbati*, bottle gourd, etc., which were on the brink of extinction in the area are now recognized by the community and the larger market as viable replacements for the hybrid variety.

Indigenous vegetables, cultivated through the organic SRI method, are now a reliable alternative to hybrid vegetables in the area. Whereas hybrid vegetable seeds still have viability, in terms of catching the early market (one of the lessons from the last *kharif* season), there is tremendous scope for the high yielding indigenous vegetable varieties because they

*This intervention has been very successful with vegetable crops—several varieties of indigenous brinjal, chili, beans, tomato, barbati, bottle gourd, etc., which were on the brink of extinction in the area are now recognized by the community and the larger market as viable replacements for the hybrid variety*

are disease resistant and can survive long into the winter.

Hybrid vegetables bear fruit early as compared to indigenous vegetables, and by the time the fruiting of the latter starts, there is already saturation in the market. Our own intervention in indigenous seeds has been based on the experiences at the field level in the villages. In the village of Dhutti, where the community is extensively involved in vegetable cultivation in the *rabi* season, indigenous

seeds in brinjal and tomato are used with very good commercial results, with high productive output, lower cases of pest attack and a slightly higher rate of return per kilogram in the market.

The community in Balaghat had already been traditionally practising organic farming; the PRADAN team's intervention of increasing the sapling rate, the use of *jeev amrit* and bio extracts encouraged the community to adopt vegetable extension on an average of 0.1 to 0.5 acre of land.

A particular instance in Tikaria village, Paraswada block, two years earlier was an eye-opener for the team. An SHG member had planted both hybrid and its traditional variety in equal patches by adopting the same technique of raised nursery, single plant transplantation and maintaining sufficient distance between the plants. To our surprise, both the patches ended up yielding comparable production by the end of November. However, in the traditional variety, the cases of pest attack such as shoot borer and fruit borer were low; the produce fetched a slightly higher market rate and was tastier.

The woman, thereafter, began to focus on the indigenous variety because it fetched her better rates and also tasted better. Concurrently, some farmers of Madanpur village of the same block also adopted improved practices with traditional paddy seeds with very encouraging results, and achieved yields comparable to the improved variety of seeds.

Based on our learning from the previous year, we realized that indigenous seeds could be a major intervention for farmers who were not able to get linked to the market for various reasons. More than 70 extremely vulnerable farmers were covered for the very first time under this intervention for vegetables. Also, since food and nutrition security is a very critical aspect in our area of intervention and calls for wider diversification of food, indigenous vegetables play a crucial role. With high instances of anaemia, stunted growth and malnourishment among the rural communities in India, there is a clear cut need for crop diversification, to help mitigate some of these dangers.

The use of hybrid seeds across the world is based on the principle of mono-cropping and market linkages for the excess produce. In India, when addressing some the issues

of poverty alleviation, we fail to take into consideration the nutrition requirement of the producer, leading to a detrimental effect on the health of women. Hybrid seeds are expensive, often require group purchasing and, as such, are not a convenient approach for many ultra-poor families in India.

Unfortunately, much of the crop produced using indigenous variety (along with hybrid) was washed away last year due to unprecedented rainfall. However, the indigenous brinjal, beans and bottle gourd were moderately successful. The most exciting result from the intervention last year was from the indigenous paddy. Twelve different varieties of paddy were promoted with 102 farmers last year—from the paddy for the barren uplands to the seeping (leaking) low-lands. It was quite a challenge to find indigenous paddy seeds in the area. After much searching and very moderate output in terms of seed collection, we decided to venture farther into the interiors of Birsa and Baihar blocks of the district. We managed to collect two quintals of indigenous seeds of 12 different varieties. Patches from 0.3 to 1 acre were selected by the farmers for sowing. The analysis of the various varieties based on the production and feedback from the community is depicted in Table 4.

Table 4: Indigenous Paddy Seed Analysis

No.	Name of Paddy	Land Type	Crop Duration (in Days)	Height of Standing Crop (in Feet)	Production (in Quintal) Per Acre				Crop Type/Weight of Paddy	Rate in Rupees per Quintal	Advantage	Disadvantage	Remarks
					Broad casting	Traditional Transplantation	Improved Practice	SRI Practice					
1.	Satiya	Upland/ Light soil	75-80	4.0	5.0	-	-	-	Heavy	1,100	Less water, mature needed, pest resistant	Prone to wilting in excessive rain	Ideal for uplands with no bund, high undulation and broadcasting
2.	Chipra	Light soil	90-100	4.0	-	7.0	11.0	-	Heavy	1,200	Less water, mature needed, pest resistant	-	-
3.	Lal Dhan	Light soil	90-100	4.0	4.0	6.0	10.0	-	Heavy	1,200	Less water, mature needed, pest resistant, good yield of hay fodder	Susceptible to falling down during the end stage of harvest	Ideal if distance is maintained, with lower sapping rate
4.	Kakeri	Light soil	90-100	4.5-5.0	-	11.0	15.0	18.0	Heavy	1,200	Less water, mature needed, pest resistant, good yield of hay fodder	-	Has the potential for replication



Table 5: Indigenous Paddy Seed Analysis

No.	Name of Paddy	Land Type	Crop Duration (in Days)	Height of Standing Crop (in Feet)	Production (in Quintal) Per Acre				Crop Type/Weight of Paddy	Rate in Rupees per Quintal	Advantage	Disadvantage	Remarks
					Broad-casting	Traditional Transplantation	Improved Practice	SRI Practice					
5.	Badal Phool	Light soil/ Medium uplands	90-100	4.0-4.5	-	14.0	-	Small size, medium weight	1,200	Less water, manure needed, pest resistant	-	Has the potential for replication	
6.	Chindi Kapoor	Light soil/ Medium uplands	100-110	5.0	5.0	7.0	12.0	Heavy	1,200	Less water, manure needed, pest resistant, good yield of hay fodder	-	-	
7.	Pili Luchai	Medium land	120-130	4.5-5.0	-	8.0	14.0	Medium Heavy	1,200	Less water, manure needed, pest resistant, good yield of hay fodder	-	Very high potential for large-scale replication.	
8.	Udai Butta	Medium land	120-130	3.0-4.0	-	8.0	14.0	Heavy	1,200	Less water, manure needed, pest resistant	-	Only one weeding is possible as the plant spreads from the bottom; potential for replication high	

**Table 5: Indigenous Paddy Seed Analysis**

No.	Name of Paddy	Land Type	Crop Duration (in Days)	Height of Standing Crop (in Feet)	Production (in Quintal) Per Acre				Crop Type/Weight of Paddy	Rate in Rupees per Quintal	Advantage	Disadvantage	Remarks
					Broad-casting	Traditional Transplantation	Improved Practice	SRI Practice					
9.	Pandri	Medium land	120-130	3.0	-	8.0	-	-	1,200	-	-	SRI/Improved variety has the potential of enhanced production	
10.	Culture	Medium land	120-130	3.0	-	9.0	12.0	-	1,200	Less water, mature needed, pest resistant	-	SRI/Improved variety has the potential of enhanced production	
11.	Safri	Low-lands	140-145	4.5-5.0	-	9.0	14.0	15.0	1,300	High quality paddy, excellent to eat, yields good rate in the market	Prone to pest attack, susceptible to falling before harvest	Has the potential for large-scale replication	
12.	Jeera Shankar	Low-lands	140-145	4.5-5.0	-	5.0	8.0	9.0	3,000	High quality paddy, excellent to eat, yields good rate in the market	Scented rice, prone to pest attack, shoot borer common	Has the potential for replication provided pest attack is controlled	

The results of the indigenous paddy experiment were shared in the Federation meeting, attended by village-level representatives. Word of the success spread. Indigenous paddy seeds, which were on the brink of extinction, in the area were back in demand. In the current *kharif* crop, about 30 quintals of seeds of 17 varieties have been collected and distributed in villages and more than a thousand farmers have taken up the activity. In Chaktola hamlet (comprising 22 families) of Dorli village, Doliya Bai experimented with the indigenous paddy seed, Pilli Luchai, for the very first time. Based on her experience, nine other SHG members approached her for paddy seeds immediately after the harvest. In this *kharif* season, ten farmers are experimenting with indigenous paddy.

If the success of last year can be replicated in this season, the paddy practice of the entire area will undergo a massive change. Seeds in the area are available for every type of land, unlike the hybrid seeds available in the market, which are uniform for all types of land. Farmers, rather than companies, will have more control over the process of farming if they are to switch to indigenous practices. Farmers will not be so alienated from the practice of farming if their seeds provide a viable and productive alternative to the seeds available in the market.

## CHALLENGES

Unlike in chemical agriculture, there is no quick-fix process in organic farming. One has to live along with the crop, treat the soil as

*The results of the indigenous paddy experiment were shared in the Federation meeting, attended by village-level representatives. Word of the success spread. Indigenous paddy seeds, which were on the brink of extinction, in the area were back in demand. In the current kharif crop about 30 quintals of seeds of 17 varieties have been collected and distributed in villages and more than a thousand farmers have taken up the activity.*

a living entity and holistically take care of both the crop and the soil. To revitalize the soil, nourishing it with regular doses of *jeev amrit* is critical. One paddy cycle requires five doses of *jeev amrit*, starting from the day of transplantation and then after every 12–15 days. A 100-litre dose suffices for a half an acre plot for a single time. For a family owning a larger plot of land, greater engagement in terms of manure preparation is required during the *kharif* season.

In the uplands, it is not feasible to apply the third or the fourth dose directly because there is very little water left in the field by that time. So, the solid part of

the *jeev amrit* needs to be sieved out and the liquid part has to be sprayed in the field, which can be a little cumbersome. The community is usually content after the third dose, even in the lowlands, and it will take some more time and effort to convince farmers of the importance of the additional two doses. At present, every family owns at least one or two bovines, sufficient for producing enough organic manure for their farms.

Preventive pest control is critical for the success of organic farming. This means the recurrent use of preventive pest control measures such as *neem kada* after every ten days from the day of transplantation. For some families, this simple but repetitive procedure, which requires focus throughout the season, is cumbersome and acts as a deterrent.

Another issue of struggle has been the widespread use of urea and Diammonium phosphate (DAP), along with pesticides, in

the OBC community in the area. This will require gradual cutting down on the chemical input every year and increasing the organic input progressively so that in about three to four years' time, the community can shift to a completely sustainable processes. Last year, in certain villages, there were cases of excessive pest attacks, particularly shoot borer in paddy due to the incessant rainfall. These attacks exacerbated in the case of hybrid paddy, which requires supplementary and regular doses of chemical fertilizers and pesticides.

Some of the adverse impacts of the chemical use in the hybrid plot can spill over to the organic plot. So, it is critical that organic cultivation be viewed from the prism of entire patches rather than small individual plots. It will take a few more years for families in the area, where extensive chemical farming and hybrid seeds have been used, to get completely oriented with the organic process.

### **THE NEW APPROACH**

The promotion of large-scale organic agriculture continues this season with the community in Balaghat. However, the approach to agriculture has undergone some drastic yet pertinent changes. Instead of focusing directly on technology and practices, a need was felt to highlight the gender-based discrimination in livelihoods, particularly in agriculture at the community level and the role women play in agriculture. The perception in society is that agriculture is an activity associated with men. Although women share in the work and even bear a large chunk of the drudgery in farming (except ploughing), their contribution to the activity is rarely acknowledged. Their own perception is that they are not farmers because the land is not their name. There is urgent need to challenge this perception and to bring about radical change in the perception

of the Self of the women farmers and in how society views them. This is the core philosophy adopted for this year's intervention.

### **AJEEVIKA SATHIS (LIVELIHOOD FRIENDS)**

The idea behind initiating the Ajeevika Sathi process is to transfer the planning and implementation of livelihood interventions into the hands of members of the SHG Federation in the not very distant future. This is in line with the vision of the team and the new stance of PRADAN, where the community will take charge of all the processes, with PRADAN acting as a facilitator. One Ajeevika Sathi was selected from each SHG. In all, 470 Ajeevika Sathis have been selected this year. Village-level meetings of SHGs were held to select Ajeevika Sathis from each SHG.

A two-day central training was held for the Sathis. The theme of the training was the skewed work division between genders and the insufficient inclusion of the women in decision-making in the household. It was meant to create awareness of the role of women as earners and their identity as farmers. Based on sub-group activities in the group, on the first day of the training, the following were the takeaways for the women attending the training:

- ◆ Women work all year round without a single day's respite, both inside the household and outside it.
- ◆ Women take the major load of work to run the household.
- ◆ Women have very little say in decision-making in their homes or in society.
- ◆ Women contribute 50 per cent or more to the overall earning in a family.

Whereas internalizing and understanding the concept of gender-based discrimination is a gradual process, the stark discrimination in the work load and in decision-making was recognized very easily by women participants. There was also the realization that they contribute to the systematic bias by their own entrenched beliefs and values, especially in the case of their treatment of the girl child vis-à-vis a boy.

On the second day of the training, the focus was on women's role in agriculture. The concept of a farmer and a woman's identity or the lack of it was discussed. Interestingly, most women find it difficult to articulate their identity as farmers, despite contributing 70 to 80 per cent of the total effort in crop production. The lack of land in their name, the social taboo associated with women ploughing, the lack of societal recognition of women as farmers and the knowledge gap in the entire crop cycle are cited as some of the reasons for this identity crisis.

At the end of the training, each Ajeevika Sathi is asked to introduce herself as a farmer. Dates are set for the first round of their technical training. The idea of an Ajeevika Sathi is to have a woman in each SHG, who is fully trained in agriculture and is capable of supporting and helping other members of her group in agriculture. She will also start the discussion on the discrimination faced by women in livelihoods and in general, and as a group start taking very small but crucial steps towards change.

*Whereas internalizing and understanding the concept of gender-based discrimination is a gradual process, the stark discrimination in the work load and in decision-making is recognized very easily by the women participants. There is also the realization that they contribute to the systematic bias by their own entrenched beliefs and values, especially in the case of their treatment of the girl child vis-à-vis a boy.*

## TECHNICAL TRAINING OF AJEEVIKA SATHIS AND EXTENSION METHODOLOGY

The technical training of the Ajeevika Sathis is held at a central location in the village, where Sathis from nearby villages also attend the four-hour process. The discussion begins with the agricultural practices followed in the previous year and the community's learning from it. A detailed discussion is held on all aspects of agriculture.

This is followed by a demonstration of how to prepare *jeev amrit/matka khad* and how to prepare the nursery

for vegetable cultivation. The focus is on all the crops and all types of land, irrespective of the method used in sowing. The training helps farmers understand simple seed treatment technology for every crop, proper handling of saplings during transplantation with minimum damage to the root zone, how to maintain resilient and pest-free nurseries, how to lower seed rates, how to use *jeev amrit* in all stages of the crop cycle, and preventive pest management.

An additional intervention this year is the use of *Ghan jeev amrit* at the nursery stage. For this, six days before the preparation of the nursery bed, *jeev amrit* is made in a drum or earthen pot (100 litres). After four days, the *jeev amrit* is mixed with ten *tokni* (about 20 kg) Farm Yard Manure (FYM), kept in the shade for two days and regularly watered. The mixture is then used in the preparation of the nursery for an acre of land under SRI, or improved variety of paddy cultivation. This

leads to the growth of strong saplings at the nursery stage. One diluted dose of *neem kada* is recommended after three to four days when the seeds are at the germination stage.

A booklet made by the team on organic agriculture was distributed in the training. Each Ajeevika Sathi was given a planning sheet to be used by them to plan their cultivation process with the SHGs. Ajeevika Sathis were taken for an exposure visit to a farm in the Bagarmarra village in Kirnapur block of Balaghat district. SPs are the field staff employed by PRADAN on task basis, to support the interventions in the field of livelihood. The SPs for agriculture support the Ajeevika Sathis in all the technical spheres of agriculture and help them fine-tune their expertise.

Video shows are held in villages on organic agriculture and on the advantages of adopting the SRI method for all crops. Ajeevika Sathis next discuss the many kinds of seeds that the community used earlier as compared to what it does at present. Farmers are made aware of the fact that if they were to completely lose control of the indigenous variety of seeds and become dependent on the market for fertilizers, they would lose their farming sovereignty.

The conversation in these meetings usually drifts to the issue of production. Experiential sharing of the last few seasons, where farmers have used traditional seeds in a scientific way, using the SRI method and improved practices, with great results allays some of their fears. Many in the community are today willing to experiment, albeit in small patches. This has

*Many in the community are today willing to experiment, albeit in small patches. This has given great hope and as more people in the community take up this intervention, and learn and grow, there will be wider replication in the coming times*

given great hope and as more people in the community take up this intervention, and learn and grow, there will be wider replication in the coming times.

## CONCLUSION

The awareness about sustainable processes in agriculture has increased greatly with these interventions and the demand for indigenous paddy has

also spiked tremendously. Unfortunately, a major part of the vegetable intervention was washed away last year. This year calls for a focused approach to sustain the *kharif* vegetable intervention. This is a critical year of intervention in sustainable agriculture for the team.

Women in the community are far more confident today about their skills in agriculture. The core area of gender-based discrimination, both in terms of work and decision-making, needs to be addressed and Ajeevika Sathis can take a lead to initiate this discussion in the community.

Lastly, there is the question of replicability of the process in other poverty pockets. Our experience in Balaghat and the experience of other people in several interior pockets of the country have shown that farming distress can be mitigated by a more holistic approach to agriculture. No doubt this approach should be well scrutinized by all the stakeholders, weighing all the pros and cons. The farmers of this country, particularly the marginalized ones, have been crying for a change for a long time now, and sustainable farming could well be the harbinger of the required change