

Organic Farming in Balaghat

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Drawing inspiration from farmers, who have been successful in using organic farming methods to improve yields significantly, the small farmers of Balaghat are steadily replacing the use of chemicals for paddy and vegetable cultivation with Jeevamrita and other organic products, thereby ensuring greater productivity and enriching soil fertility.

INTRODUCTION

There are many definitions for organic farming, but the one provided by US Department of Agriculture (USDA) is considered the most appropriate. Organic farming is defined as “a system that is designed and maintained to produce agricultural products by the use of methods and substances that maintain the integrity of organic agricultural products until they reach the consumer”. This method of farming is an ecological production management system that promotes and enhances biodiversity, biological cycles and soil biological activity. It is based on minimal use of off-farm inputs and on management practices that restore, maintain and enhance ecological harmony. Even the National Bank for Agriculture and Rural Development (NABARD) relies on this understanding.

This year, the Balaghat team was trained in different organic farming practices, and understood the ways by which it is more advantageous than chemical-based agriculture. Some of the practices were tested on crops such as paddy and on some vegetables such as brinjal, tomato, onion, chilli and garlic.

Owing to my interest in organic farming, I visited Subash Sharma's farm in Wardha (Maharashtra) last year, along with another three colleagues from Pradan. Mr. Sharma shared his rich experience about chemical and organic practices. He has been practising organic farming for a decade and does not use any chemicals or hybrid seeds. Sharma has 25 acres of irrigated land, on all of which he practises organic farming. He used to rely on chemicals before he switched to organic methods. He was primarily attracted by the fact that organic practices are cheaper than chemical-based farming.

In the initial stages, he used both organic and inorganic practices. Gradually, he began applying animal manure to his crops. Minimizing the use of chemical fertilizers, he planted *genda* plants (marigold) around the vegetables. Marigold is a natural pest control plant, known to repel whiteflies, kill bad nematodes and drive away bugs. On the other hand, however, it attracts mites and aphids, especially during their

egg-laying season. Sharma began to re-plough crop stubs and weeds into the soil, making for a form of green manure. He planted guava and other fruits around his farmland, to attract such birds that would feed on insects that commonly destroy crops. He advocates the importance of multi-cropping, in order to reduce risks, and the rotation of crops, to ensure that a fair balance of soil nutrients is retained.

Today, Mr. Sharma's produce commands a relatively higher price in the local markets, on account of their organic quality. He has become a brand in himself. He has won many awards. He summarizes the main benefits of organic farming thus:

1. It provides content for microorganisms to thrive in the soil. This is essential to enhance soil fertility.
2. Organic inputs provide greater nutrition for crops; as a result the inputs enhance crops and productivity.
3. Most of the organic inputs are easily available at the village level at rates far lesser than that of chemical inputs. This makes the given set of practices practical and feasible.
4. Organic practices restore soil fertility in such a way that its positive effects are long sustaining; so much so, organic practices can be discontinued after a certain minimum period of application.

In this article, we look more specifically at one of Sharma's primary prescriptions: Jeevamrita. This prize-winning formula is known to double yields.

JEEVAMRITA

Jeevamrita is simple to prepare and effective in practice. It requires a cement water tank or barrel with a capacity of 300 litres approximately. First, 200 litres of water is poured into the tank. To this, 80 kg of locally available cow dung and 4 litres of cow urine are added and stirred, to make a uniform solution. A kilogram of jaggery (*gur*) is added next, and the solution is stirred till the *gur* dissolves completely. The solution is left to ferment for 12 days and has to be stirred once every day. At the end of 12 days, the Jeevamrita is ready for application. Irrespective of the crop, 285 kg of Jeevamrita are sufficient for one single application on one acre of land.

The land must be prepared and should preferably be wet before the Jeevamrita is sprayed over it. Jeevamrita should be sprayed at all four stages of the crop cycle—nursery preparation, transplantation, growth and before fruiting. During the growth stage, Jeevamrita must be applied twice.

ADOPTION OF JEEVAMRITA BY FARMERS OF BALAGHAT

In Balaghat district, Pradan is working with small landholding families, who cultivate paddy and vegetables. The vegetables are mostly for self consumption. Given this context, Pradan aims at increasing yields and improving soil fertility while decreasing dependence on fertilizers and pesticides. In the past, farmers of this area have relied heavily on chemicals for paddy cultivation.

TABLE 1: INGREDIENTS FOR MAKING JEEVAMRITA

No.	Components	Purpose	Quantity
1.	Water	Base	200 lit.
2.	Cow dung	Micronutrients	80 kg
3.	Urine	Pesticide value	4 lit.
4.	Jaggery	Fermenting agent	1 kg
Total Jeevamrita			285 lit.

Both termiticides and pesticides are used in abundance. Local farmers are used to applying farm manure as part of the field preparation. Usually, they would apply about 15 to 16 quintals per acre. During transplantation, an average of 30 kg of DAP are used. And during the growth stage, an additional 30 kg of urea are heaped on the crops.

Fortunately, vegetables have been spared the use of chemical fertilizers. Even traditionally, farmers have relied on organic practices for vegetable cultivation. As part of the local organic practices, they rely solely on the local seed varieties. The farmers would apply organic potash to the vegetables to free them from sucking pests. Vegetable growing is undertaken in the homesteads (*badis*), on no more than 5 to 10 cents of land. In addition to chillis and brinjals, they sometimes grow green fodder in their homesteads.

But all is not fine in the organic methods adopted by the local farmers. The use of *kaccha* manure (slush) has increased the problem of termites. Even though farmers have about four or five animals each and a steady supply of dung through the year, they leave it to rot for about a year before applying it to their vegetables. In the interim, not only do the rains wash away the primary nutrients but the dung also gets infested with termites. When this dung is used on the land

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where vegetables are grown, the termites get transferred to the plants. The introduction of Jeevamrita has saved the vegetable crops from many such maladies. A reasonable application of about 200 ml of Jeevamrita to each of the

plants at different stages has improved the vegetable produce considerably.

SUNIYA BAI

Suniya Bai lives in Khursoda village of Balaghat block. She undertook SRI paddy and used Jeevamrita combined with chemical fertilizers for her crop for the first time last year on an acre of land. As part of the land preparation, she used 25 kg of DAP. This is comparatively lesser than the standard usage of 30 to 35 kg per acre in the area. As a substitute for the remaining amount of DAP, she applied 285 litres of Jeevamrita to her fields. She continued with the use of Jeevamrita during the transplantation stage, the growth stage and prior to harvest. The use of urea during transplantation and growing was reduced to 15 kg. On seeing the wonderful results, Suniya Bai decided to forego the last application of urea and relied solely on Jeevamrita.

Suniya Bai shares that prior to using Jeevamrita, she got only 8 quintals paddy from her land. The yields with Jeevamrita were a startling 22 quintals of paddy per acre. She has reduced the use of fertilizers and DAP

TABLE 2: SUNIYA BAI'S USE OF JEEVAMRITA

Stage	Input	
	Chemical	Jeevamrita
Land preparation	20 kg DAP	285 lit.
Transplantation	15 kg Urea	285 lit.
Growing stage	15 kg Urea	285 lit.
Pre-harvest	...	285 lit.

from 50 kg to 30 kg. Her family used to migrate for work in the past; but with the greater food security, nobody from the family migrated this year (2010).

SITALA BAI

Sitala Bai lives in Katoli village of Balaghat block. She used Jeevamrita on 10 cents of *badi* land. She planted 200 saplings of chilli and 400 of brinjal in June in her homestead. As is the norm in Balaghat, she did not apply chemical fertilizers. She applied about 200 ml of Jeevamrita to each plant. Initially, the growth was very slow; however, at the branching stage, the plants grew much faster and bigger. Each plant yielded about 1.5 kg of brinjal—half a kilogram more than that obtained under conventional methods. Similarly, each plant of chilli has yielded 1 kg—almost twice the yield under conventional methods.

There is a stark difference in the yields obtained by relying on chemical inputs and those obtained by using organic practices alongside SRI.

Jeevamrita. Seeing this, ten other farmers in the neighbourhood have adopted the practice.

OUTREACH

The visit to Sharma's farm convinced the farmers about reducing the consumption of chemical inputs by at least

30%. Now, with the positive results, the farmers promise to reduce the usage of chemical inputs by at least 15% every year. Because vegetables were already being organically grown, Pradan is adopting a two-pronged strategy, that is, to improvize the existing set of organic practices where vegetables are concerned and to ensure that the use of chemicals for cultivating paddy is gradually reduced with each season. From a preliminary assessment, the following results have come to light as regards paddy yields:

TABLE 3: YIELDS UNDER DIFFERENT TYPES OF PRACTICE

No.	Type of Practice	Average Yield (Quintal/Acre)
1	SRI along with Jeevamrita and chemicals	20
2	SRI exclusively with chemicals	16
3	Conventional farming with chemicals	8

Last year, prior to the use of Jeevamrita, she sowed maize and mustard. The yield was around one quintal and half a quintal, respectively. She sold this for a paltry amount of Rs 600. Her earnings, so far, for this year (2010), are about Rs 7,000 from the same area!

In the absence of barrels and cement tanks, Sitala Bai has very innovatively used earthen pots (*matkas*) to prepare small amounts of

WAY FORWARD

Clearly, the results are best when SRI is combined with Jeevamrita. The present results are encouraging, and farmers are willing to use more of Jeevamrita in place of chemicals. Farmers have also become eager to apply Jeevamrita on the vegetables in their homesteads.

From last year's experience, it is seen that farmers are more interested in undertaking

vegetable cultivation than paddy because of its practical ease. For vegetable cultivation, Jeevamrita only needs to be prepared in small quantities. The farmers, therefore, do not have to invest in big barrels or cement tanks. Many farmers simply use earthen pots to prepare the solution. Its application too is far easier on vegetables because the farmers are not required to carry the solution over long distances from their homes (where it is often prepared) to their fields, as is required for paddy. The resulting yields of vegetables are 20 to 30% more than those obtained from conventional methods.

In a meeting with the farmers, who have experimented with the above practice, it became clear that Jeevamrita works well with those who own lands less than 1 acre. Those with more than 2 acres found it difficult to arrange for ingredients such as urine. They also expressed a need for cement tanks to undertake the mixing. In comparison, the vegetable growers found it much easier, for reasons mentioned earlier.

The Pradan team is now planning to introduce other organic pesticides such as Agniastra, Brahmastra and Neemastra as well as vermi-compost in collaboration with the government, particularly the Agriculture Technology Management Agency (ATMA). The raw material for each of the above preparations is locally available. A combination of organic fertilizers and organic pesticides is sure to endure greater yields. In addition, *genda* flowers, tree bund planting and re-ploughing weeds will also be encouraged.

Pradan is now planning to establish a demonstration plot that will showcase organic practices. This will result in removing farmers' doubts and confusion about Jeevamrita and the applicability and effect of organic methods. Care will also be taken to revive some traditional varieties such as *tuar* and *sami*, by promoting these on the demonstration plot. Pradan plans to reach out to 500 farmers for vegetable cultivation and 200 SRI farmers to promote Jeevamrita and related organic practices in the next two years.