Responsible Soybean - Experiences of farmers of Madhya Pradesh, India

May, 2012
The Round Table on Responsible Soya (RTRS) Association:
http://www.responsiblesoy.org

With the world engaged in serious debate over climate change, and reducing carbon footprints, multiple stakeholders (producers, industry, trade & finance, and civil society actors) from all over the world, got together to initiate a global dialogue on soy production, that was:

- Economically viable;
- Socially equitable; and
- Environmentally sound.

These stakeholders together formed the RTRS (Round Table for growing Responsible Soybean) Association. It provides them and other interested parties – producers, social organisations and business and industry – the opportunity to jointly develop global solutions, leading to responsible soy production.

As a result of consensus between all of them a standard was developed, which includes requirements to:

- Halt conversion of areas with high conservation value;
- Promote best management practices;
- Ensure fair working conditions; and
- Respect land tenure claims.

Solidaridad
www.solidaridadnetwork.org

With the Netherlands being the second highest importer of soybean in the world, mainly as cattle feed, it has taken upon itself the responsibility of promoting long term social and environment friendly practices of soybean production. Solidaridad, an NGO based in the Netherlands, works on creating sustainable supply chains from the producer to the consumer. This enables producers in developing countries to get a better price for better products and it helps to preserve people’s environment.

Action for Social Advancement (ASA)
www.asaindia.org

Action for Social Advancement (ASA), which believes in ensuring livelihoods with equity and dignity, is a non-profit organisation, headquartered at Bhopal and working for the livelihood improvement of rural poor in over 1000 villages in Madhya Pradesh and Bihar, since 1996. The Agricultural Productivity Enhancement Programme of ASA tries to optimise agriculture productivity through various interventions that are designed to promote farmer participation in the technology development and its dissemination.
The Chhatarpur and Tikamgarh districts lie in the northeastern part of Madhya Pradesh, the central state of India. They form part of a region that is collectively referred to as ‘Bundelkhand’ which was at one time ruled by the Bundela kings.

Conversation with the locals reveals great respect and awe for their predecessors, the Chandelas. The world knows these rulers for building the exquisite Khajuraho temple in a town by the same name, but the inhabitants remain eternally grateful to them mainly for the building of numerous tanks and reservoirs, to counter the fast drainage of water in the semi-porous reddish soil. They are functional even today and continue to be major sources of water for local farmers in the rainless months.

However, of late (since 2009), a new history is being made in this region. More and more subsistence farmers with small landholdings (average landholding is 1 hectare) and some with less than an acre of land are choosing to grow ‘Responsible’ Soybean (RS), reaping visible benefits and enjoying an improved quality of life.

Soybean as a crop was introduced in Madhya Pradesh three decades ago (the state accounts for around 51% percent of the total national soybean production).

However, many farmers, after an initial phase, had abandoned its production. In the words of Hiralal Khushwaha of Sigravankalan village:

“Earlier, soybean cultivation was more or less a thoughtless affair. We would plough, ‘broadcast’ the seeds, irrigate (if we felt the need) and harvest, just going through the motions mechanically, and were resigned to a meagre yield."

Many farmers cited the progressively increasing cost of production, compared to dwindling returns as the main reason for this. The lack of awareness of best farming practices, and the absence of sustained and guided supervision also prevented many from growing it.

However, of late, visitors to Rameshwar Prasad Tiwari’s house in Jasguwan village are greeted by piles of gunny bags stacked near the entrance, filled with soybean.

“These are not bags of soybean, they are moneybags”, says a proud Rameshwar Prasad.

As one travels from village to village and converses with other farmers registered with the SOYPSI (Soybean Producer Support Initiatives) project in the region, one realises that Prasad is not alone in choosing to grow soybean. It is now the crop of choice for thousands of farmers in the area. On close examination, it appears to be not a passing trend or a mere change of heart, but a conscious changeover based on evidences of a reduced input cost, production of a healthy crop and strong market linkages that ensure the farmers a good price.

What has happened that has changed the opinions of so many farmers like Rameshwar Prasad?

A large part of the credit goes to initiatives like the SOYPSI project, begun in 2009 in five districts of the state (Narsinghpur, Chhatarpur, Tikamgarh, Guna and Damoh). The project has a timeline of four years and is implemented by members of the grassroots organisation ASA in collaboration with Soiardad, a Dutch NGO, and run based on the principles laid down and promoted by the Round Table on Responsible Soya (RTRS) Association.
Situation before the start of the Soybean Producer Support Initiatives (SOYPSI) project:

Lock of/poor knowledge of best farming practices:

“We had invited some senior members of the National Research Centre of Soybean to take a look at the farming practices being followed here”, recalls a member of the grassroots organisation ASA.

“They were shocked to find farmers still practising the ‘broadcast’ method (a manual method of seed dispersal where the seeds are simply scattered around the field by the farmer) for seeding.”

“While it was understandable for a crop like soybean where the sowing time is very less (if grown as a rain-fed crop, it has to be sown in the lull between the initial rain spells), the scientists found it strange that they used this method for other crops as well!”

There was no chance that farmers knew or had even heard of cleaning/treating seeds before sowing, which agrochemicals were safe and how much of them to use, and the benefits of soil testing, etc.

Migration:

Ramkumari’s husband, Laxmi Kushwaha is away in Delhi, working as a construction labourer, leaving behind his younger son, Hariprasad (22 years) to help his mother to tend to their farm.

This was the norm in many such families before the start of the SOYPSI project, where the menfolk migrated to metro cities in search of work returning to their land only during the time of sowing and harvesting. As a result, there was lower level of investment in things like buying of good seeds, hiring or purchase of a seed drill, etc.

Gender biases in work division, wages, benefit sharing:

Chatarpur, despite being a district, is yet to get a railway station (it is in the process of being built).

Being a remote area may have caused this region to lag behind in adopting change as compared to other places.

“The purdah system still continues here”, shares an ASA worker, referring to the culture where a woman veils her face from elders and men who are not family.

Before the advent of the project, there was almost no awareness amongst the farmers that both men and women deserved equal wages and benefits from the same amount of work.

Small holding size (less than 2 hectares), and poor linkages with the market completed the set of adverse conditions prevailing before the advent of the project.

The approach:

ASA’s idea behind creating an Internal Control System, with a structured intervention team comprising field officers (at the village level), field executives (at the block level), district level managers (at the district level), regional coordinators and a project anchor (at the state level), was to be available to the farmers for support during all milestones of production of soybean.

The first thing to do was to find positive minded people like Nand Ram Kushwaha from Kanti village in Tikamgarh block and district. An ardent devotee of Lord Ganesh, the deity whose blessings are invoked when starting new initiatives, he was curious to learn all about the new programme and soon became a ‘lead farmer’. With help from lead farmers like Nand Ram, other farmers registered with the project were mobilised into “producers group” at the village level as primary groups.

In Nand Ram’s village, Kanti, the adoption of the broad-bed furrow method of sowing has resulted in almost 1.5 times more production of soybean. 105 Farmers out of 195 farmers who had adopted this method reported a production of 1.5 tonnes per hectare.

In neighbouring Nadia village, the same has been achieved by using the ridge and furrow method. In the year 2011, 62 farmers out of 114 farmers using this method reported a production of almost 15 quintals per hectare.

The methods of training like live demonstrations and on-farm & participatory training camps, along with regular and sustained physical contact with the target group, proved to be the best way forward.

In the words of Rameshwar Prasad from Jasguwan village, “The first year that the project members spoke to us, I was not convinced, and considered them a nuisance. But when I saw that they did not leave after one or two visits, and the results were as they had assured us, I started paying attention.”
In Tikamgarh district, timely sowing based on the weather information provided by ASA was done by more than 70 percent registered farmers. This information helped them plan the dates for hiring tractors and seed drills. Sufficient time in hand for planning also meant that most farmers did not have to resort to the less effective method of broadcasting the seeds.

The results of these initiatives showed in the increase in production:

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Villages</th>
<th>Registered Farmers</th>
<th>Certified Farmers</th>
<th>Certified Production (MT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009-10</td>
<td>53</td>
<td>2100</td>
<td>1757</td>
<td>2700</td>
</tr>
<tr>
<td>2010-11</td>
<td>106</td>
<td>6214</td>
<td>5418</td>
<td>8924</td>
</tr>
<tr>
<td>2011-12</td>
<td>126</td>
<td>8997</td>
<td>7102</td>
<td>10231</td>
</tr>
</tbody>
</table>

Ghanshyamal Ahirwar and his wife Komal of Kanti village in Tikamgarh block, would probably be one of the few who has reported a decrease in production after an initial good season, as his crop was damaged due to water retention in his fields. However, both husband and wife are upbeat, their faces lighting up as they share that they will continue to grow soybean in the coming seasons, exhibiting hope, the one ingredient of a process that can never be bought or sold, but is awakened.

“Definitely! So what if these two years were bad. Next year will be better!”

For the majority of farmers in the districts, the average yield per hectare has increased, as shown below:

<table>
<thead>
<tr>
<th>District</th>
<th>Year</th>
<th>Production (Average yield/hectare)</th>
<th>Percentage higher than district average (average yield in tons/hectare)</th>
<th>Percentage higher than the state average (average yield in tons/hectare)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chhatarpur</td>
<td>2010</td>
<td>1.6 tons</td>
<td>56%</td>
<td>35%</td>
</tr>
<tr>
<td>Tikamgarh</td>
<td>2010</td>
<td>14.16 tons</td>
<td>20%</td>
<td>40%</td>
</tr>
</tbody>
</table>

Awareness, confidence and abundant change:

The first tentative steps taken by the farmers in the cultivation of responsible soybean has now given way to new found knowledge and confidence.

In the words of Rameshwar Prasad,

“Earlier, we would get duped into using fertiliser as it was dumped in some fields by dealers, free of cost. Now, even if it lies there for two years or more, we will not touch it, as we have seen what its long-term harmful effects are.”

The pest control methods, like the ‘T’ guards and the 5-leaf mixture that were prescribed were an instant hit, as in the words of many farmers, they were ‘free’. Many farmers reported not spending a single rupee on pesticides.

Hiraram Kushwaha of village Sigrawankai in Chhatarpur district shares with an amused smile, “Earlier, when asked to send our soil for testing, we used to simply scoop up some mud from anywhere in our fields, fill it in a bag and send it for testing. Now, we do it the proper way,” going on to demonstrate the same using a twig.

The practice of asking for bills has now become a habit for many.
“Now I not only ask for a bill from the dealers that sell seeds and fertilisers but have made it a habit to ask it after any purchase, even clothes”, says Rameshwar Prasad.

Fellow villager Ramashankar Panday finds his planning skills with the help of the Farmer’s Diary have improved. “Earlier, whatever was required was bought on a daily basis, and I had no idea how much I was spending. Now, with the help of the entries I make in the diary, I know exactly how much I am spending, and when compared to the previous years, whether and how much I am saving.”

Another farmer from the same village, Pancham Lal Ahirwar of Jasguwan village, plans to mobilise three of four farmers like him to collectively invest in a seed drill.

**Effects of change:**

Many farmers feel that migration is slowing down and the trend may be reversing, with earnings from cultivating cash crops like soya fetching a good price, with the added advantage of being self-employed and in one’s own home.

By the end of the year 2011, 10000 small soya producers have been trained on RTRS Principles and Criteria. The total number of registered farmers is 8997 while the total certified area is 7155.75 hectares. While the total certified production of year 2010 was 8924 metric tonnes, in the year 2011, it touched 10232 metric tonnes.

Due to practicing of good agriculture practices, producers have reported a savings in cost of production of about Rs. 2000 per hectare, while overall benefits have reached up to Rs. 5000 per hectare. There has been an increase in awareness amongst farmers on social and environmental issues like child labour and the sale use of agrochemicals.

**Dreams, expectations, desires....**

Hiralal Khushwaha expects a lot more from the SOYPSI project and the implementing ASA team.

“I want to know how I can get financial support to buy a tractor. I also want to learn more about the technical aspects of farming.”

Hazarilal, from village Kanti (block Tikamgarh, district Tikamgarh) dreams of converting his three ‘kutch’ (temporary) dwellings into a two-storied ‘pukka’ (permanent) one with the sale of his soybean produce.

Shakuntala, from village Nadia (block Bihawar, district Chatarpur), wishes to earn at least one lakh in the next season, as she has many dreams for her family and her house.

“I wish to buy more land, and put a tube well on it, as the water in our well is at a very low level.”

“My children cannot study beyond the 10th standard, as the high school is 10 kilometres away. So I’d like to put them in a private school in future.”

“I wish I could build a toilet with a water tank (cistern) on top.”

**The road ahead:**

While many farmers have registered for the SOYPSI project, there are still many more that can be induced to join.

Change is a slow and painstaking process, and it will take some time for the farmers to apply the same principles of production that they use for soybean to other crops as well.

With continued exposure to best practices, it is hoped that the existing gender biases too may reduce in time to come.

Ironically, while soybean is the first choice of many farmers as a cash crop, it does not form part of the diet of the growers. With 40 percent protein and 20 percent oil, along with high mineral and vitamin content, ideally, it can easily replace the comparatively costly other source of protein – pulses. It is still seen as cattle or poultry feed. However, in times to come, it may replace pulses, much as wheat has replaced older crops grown in the region, like millets.

Although some credit for the bumper soybean crop obtained by the farmers can also be attributed to the benevolent monsoons, after a four-year period of drought, there is no denying the fact that the land and its people have gained from these ecological and environment friendly measures, with the chain of fertility being carried from one season to the next.
Bijawar, which is about 36 km from the district town of Chhatarpur, was once the capital of a princely state by the same name in the region of Bundelkhand. It has grown from a small town to one that boasts of a Government Degree College, and is the first block to have started a Farmer Producer Company as part of the Responsible Soya initiative.
Village: Jasguwan

Case Study of Rameshwar Prasad Tiwari

The house of farmer Rameshwar Prasad Tiwari is bustling with activity. His youngest son, Sandeep Tiwari (9 years), is all dressed up to go to school which begins in the afternoon, while his younger brother's infant son plays in the courtyard.

Four out of his brothers, along with their families, stay here with him in their father, Ram Prasad and mother, Sarman Bai's house. One son, who has just retired from the CRPF, lives in Chhatarpur, while the other brother lives in Bijaipur. The family claims to live peacefully, without any disputes. One reason for this could be that Ram Prasad has, in his lifetime, divided his land holding of 18 acres equally amongst all his sons, with each son getting 3 acres.

Rameshwar Prasad's middle son, Sanjay (15 years) is away studying at Vrindavan, while his eldest son, Sanju (18 years), operates a 'paan' (betel leaf) shop in Ghaziabad (a district in Uttar Pradesh, close to New Delhi). He also has two daughters, Roshni and Vibha, who are married.

Sharing memories of their childhood, Rameshwar Prasad says, "Money was a big problem for a large family like ours. My father used to sell 1 kg of wheat for 3-4 kg of 'jowar' (millet), as it was cheaper, and quantity for us was more important than taste and quality."

"Houses were mostly ", (temporary). Then around 20 years ago, came change in the form of electricity, and fertilisers. Initially, we were sceptical of using them, so the dealers found an ingenious way of getting us to use them; they would come to our fields in the cover of darkness, and sprinkle it over our plants. When these grew taller and healthier than normal, in a shorter span of time, they would come forward and claim the effect of the 'wonder' chemical. After that, of course, we all embraced it with gusto."

Ruling the use of fertilisers, Rameshwar Prasad says, "For many years we used fertilisers and obtained a good yield. Then, gradually, it started dwindling, until now it has reached a point where we need double the fertiliser than before to the same yield."

"Ever since we became associated with the good practices for growing soya as advised by the Responsible Soya team, the produce has started picking up."

Pointing to the dozen or so sacks of soya kept near the entrance of his house, Rameshwar Prasad shares, "This crop is like liquid money for us. In case a child is ill, we sell it, and get immediate money. The methods like line sowing, using homemade manure, and pest control mixtures have helped the yield grow enormously."

"Even little nuggets of knowledge like how to use cow dung manure has helped. Although we knew that cow dung was good manure, we simply scattered it all over our fields. Then the Responsible Soya team told us to treat it with composting of cow dung and then use it."

We believed that birds would stay away by us putting up 'jakdas' (scarecrows), but they were good only for bats to hang on, as they would come and eat the rats. Birds were unable to sit on them as they could not perch conveniently. Simple measures like the 'T' guards have brought down our input costs tremendously. In fact, this was one of the first bit of advice that we followed."

"We get information not just for our soya crop, but also other crops, like the SWI method of seed treatment for wheat. We have not lost anything by following the advice given by the Responsible Soya team, only gained."

"When we are trying out something new, we have many doubts that need to be cleared and queries that require answers. Having the Responsible Soya team at hand to do so has been a major factor in our adopting the practices suggested."

Rameshwar Prasad shares his observations about the advantages of line sowing, "Earlier, as we would 'broadcast' the seeds, the pests would spread over the entire crop. Now because of line sowing, since the pests travel from leaf to leaf, and reduce cost of weed management due to use of wheel hoe they get limited to one line. Also, since we were advised to plant maize as an intercrop, the pests for one line of maize (which are specific to the crop) are not able to get to the other line, this is a multi storey cropping method because of the soya crop in between, saving both the crops."
“Sowing the seeds at a distance of 18” with the help of the seed drill has given me a better yield, as the plants get enough room to grow.”

Rameshwar Prasad shares his basic mantra for achieving success. “Success comes to those who listen. After my father and mother, my gurus have been the organisation and consultants who have come here with this new knowledge.”

This is Rameshwar Prasad’s experience talking, as in his own words, “The first year that the Responsible Soya team spoke with us, I was not convinced and did not listen to them. In fact, I considered them a nuisance. It was only when I saw the results in other people’s farms that I paid attention.”

Pointing in front of him towards a visibly newer construction than the present one, he says, “It is with the money earned from this crop that we have been able to make a ‘pucca’ (permanent) extension to this old house.”

“Earlier, I used to just obtain seeds through a barter system from fellow villagers.”

Rameshwar Prasad’s yield has jumped from 2.5-3 quintals per acre to almost up to 8 quintals per acre. As advised, he never forgets to take a bill from the Krishi Beej Bhandar (Farmer Seed Store). In fact, he has extended this practice to other areas like the purchase of clothes, etc.

Situated at the entrance to the village, Rameshwar Prasad’s field also boasts of a compost pit. By using the manure thus created, the soil’s organic carbon is increased “I have learned all this after attending the sessions conducted by the RS team here,”, says he, pointing to the shed on his land where regular classes for all registered farmers are held.

Rameshwar Prasad’s future plans include building a larger house. He also plans to recall his son from Ghaziabad, who he says, was sent “to learn about the value of earning his own income. I will invest Rs. 1 lakh to help him set up his business, a grocer’s shop.”

“My land is undulating, and needs levelling. One of my brothers, Harish Chandra has a tractor, and my other brother, Kailash has a bank account, which I use. My own bank account is these sacks of soya!”

**Case Study Pancham Lal Ahirwar**

The village house of Pancham Lal Ahirwar, a graduate in History, is ‘L’-shaped. It overlooks a well in one corner, and has neat, symmetrical squares made with limestone called ‘chowk’ (square), customary to every house in this region. His farm of **6 acres** is a good ten minutes walk away from his house. Pancham grew up in the house of his uncle, Kanta Prasad Ahirwar, who was Deputy Collector from Chhindwara (a district in southern Madhya Pradesh), so that he could complete his higher secondary. He visited his home only during the sowing and harvesting season, to help his father.

When he was about to join college, his father lost his vision completely, on account of which he had to return home. He completed his studies from Bijawar, while overseeing their farm side by side. Now he devotes his full attention to the farm, while he hopes to bag a job in Bijawar.

“Since I haven’t grown up farming, I find it a very tough, 24 hour job. If I can manage a job, government or private, somewhere close by, I can allow other farmers to work on them, and share the produce.”

Pancham stays with his parents, his wife Rajshree and their three children: **sons Amar (12 years) and Ajay (8 years), and daughter Ruby (3 years)**, in a little mud hut on the farm itself.
Pancham’s family has been growing soybean since the past five to six years. When he returned, he simply followed the methods practiced by his father. They would broadcast the seeds, which were the remainder of the previous year’s crop.

“I had no idea what quantity of seeds to sow in 1 acre, and used 50 kg per acre, as I saw others doing. We got a yield of around 5 to 6 quintals per acre at the time.”

“I was stunned to get a yield of 6 quintals from that half acre!

“In the second season, around 90 farmers had joined the RS group, including me. I planted soya in 3 acres, and it was used as a showcase plot, at every stage of growth, so that other farmers could also see and learn about the changes. I got a yield of around 35 quintals that year.”

Once convinced, it didn’t take long for Pancham Lal to adopt all measures advised by the RS team.

“I have sent the soil from my land for inspection to the government laboratory, and results are awaited. I ploughed my fields in summer, before the monsoons arrived, so that the moisture can go deep down inside, and all pests under the ground can get killed.”

“By the third season, farmers had started approaching me to find out how to grow responsible soybean.

“I hired a seed drill and tractor at the rate of Rs. 600 per hour, from my uncle, Bansi Dhar. I have also used a local contraption called the ‘tifunn’ (‘ti’ meaning three and ‘funn’ meaning teeth) a manually operated locally made seed drill, having three teeth).

“Getting a seed drill on hire at the right time is a challenge, as there is very little time for sowing, and everyone needs to use it at that time. Sometimes, by the time I get it, the time left for sowing is very little, so I do line sowing in some portion of my land, and broadcast in the rest, despite knowing that the yield will not be too good in the latter.”

“With the money I earn from my soya crop, I plan to build a boundary wall for my farmhouse, and a toilet. I also plan to diversify by starting a dairy and a poultry farm. I am also trying to convince three or four fellow farmers to collectively invest in a seed drill. The majority of the money earned will, of course, be kept aside for my children’s education.”

Case Study Pancham Lal Ahirwar

As he sits down in a chair, with forehead covered by a large red ‘tilak’ (mark made with red colour, by Hindus after visiting a temple or saying their daily prayers), Ramashankar Pandey does not come across as your typical farmer. At first glance, he seems more like a practising ‘pundit’ (learned Brahmin, who performs special religious rites for other Hindus). His father retired as a Head Constable some years ago, and he owns 4.5 acres of farmland.
He stays in the village with his wife Yashoda Pandey, while his two sons Dheeraj (14 years) and Pankaj (16 years) are away studying in the ‘Sadhguru Seva Sansthan’ in Chitrakoot (a town of religious, historical, cultural and archaeological importance, in Satna district of north-eastern Madhya Pradesh).

His father, an eminent person of the village, got a temple constructed there, which is visible from Ramashankar’s house, and which is also where he works.

Ramashankar’s association with the Responsible Soya team has borne good results for him in a number of ways.

“I never knew that burning of fields was not good for the soil. We villagers sometimes burnt the fields to clear them of the remains after a harvesting season. Now, after the Responsible Soya team pointed out that we were ending up destroying essential nutrients and helpful organisms in the process, I have stopped the practice.”

Reiterating the woes of high input costs incurred during cultivation of the crop, Ramashankar says, “The cost of pesticides was a big drain on our finances, and worse, our cattle would sometimes get affected by eating the medicated crop. Then, the Responsible Soya team showed us how to make the five leaf mixture, by mixing leaves of neem, pumpkin, dhatura, besharma and acuuga in some water, and leaving them in an earthen pot to rot for 8 to 10 days. One litre of the mixture thus made is then mixed in a spray tank full (a typical spray tank can carry up to 16 litres of liquid), which we then use to spray once or twice over the crop.”

Speaking about his experience with soil inspection, Ramashankar says, “I had never got a soil inspection done for my soil before. When I actually went ahead with it on the advice of the Responsible Soya team, the report was an eye opener! It showed that my land had low sulphur content. I then added, once again on the advice of the Responsible Soya team, around 13 bags (of 50 kg each) of single super phosphate. The yield I got thereafter was almost 7 quintals per acre, which I sold at the rate of Rs. 2000 per quintal.”

“The most effective practice I have found is the regular filing in of the Farmer’s Diary. Earlier, whatever was required was bought on a daily basis, and I had no idea how much I was spending. Now, with the help of the entries I make in the diary, I know exactly how much I am spending, and, when compared to the previous years, whether and how much I am saving.”

“The yield from my soybean crop before I was approached by the Responsible Soya team was barely 3-5 quintal per acre, and 5 only when the rainfall was exceptionally good! I made just about enough money to cater for seeds, fertliser, pesticides, etc., for the next crop. Now, I manage to save around Rs. 10,000 to 15,000 per season.”

Proof of his increased household income is visible in the form of his latest purchase—a satellite dish and a portable television, both costing a total of Rs. 4,400.

“The most effective pest control method I have found is the wire mesh box method,” says Ramashankar, referring to the pheromone trap. “We have to mention what crop we require it for, as the insects are different for each crop. It emits a ‘gandhi(smell) which attracts the insects, and traps them. There are no harmful side effects on my crop. While the box costs around Rs. 45 to 50, the first time round it is given to us free.”
Speaking of how he has become much in demand due to his newly gained knowledge, Ramashankar smilingly shares, “The other day, my brother in law from Satna (a district in southern Madhya Pradesh) called to ask me about how to get rid of the pests plaguing his ‘channa’ (gram) crop. I told him to straightforward get the box (pheromone) trap and even told him how he should get it.”

“This year, I have used no DAP (Di-Ammonium Phosphate) for my fields.”

Elaborating on his future plans, and showcasing his knowledge of better seeds and the visible advantages of soil testing, Ramashankar shares, “I will plough my fields in March-April, and also get another soil inspection done. I will also buy new seeds from the Farmer Producer Company or the ‘Beej Nigam’ (Seed Corporation), the 9305 variety in case the rains are delayed, and the 335 variety, if they are in time. I will mix them with some seeds from last year’s crop.”

“In case the rains are on time, I plan to plant soya in all 4.5 acres of my land, plus some other land that I manage on a shared basis. I may also add another storey to my house.”

**Village: Nadia**

**Case Study of Shakuntala Babulal**

As one enters the house of Babulal and his wife Shakuntala, one is greeted with the sight of sacks of soya piled high in one corner, above which, in an alcove in the wall, sits a sewing machine. Shakuntala shares that she is a seventh standard ‘fail’ (in the villages of India, the time spent in a particular class in school is also counted, whatever the results at the end of term). They have a landholding of 1.5 acres.

The likes of Shakuntala are rare in this part of the country, as she imparts training on good practices of responsible soya cultivation to male farmers. In a region where most women cover their faces completely in the company of other men, and are generally kept away from male dominated practices like farming, Shakuntala comes across as refreshingly different.

Apart from training, she also cooks rice daily for 2 hours at the Government High School, as part of the Mid Day Meal Scheme. She is President of the ‘Ma Sharda Self Help Group’, and both husband and wife are known in the village to be eager learners, willing to adopt new methods and ways that can help them improve their quality of life.

They have five daughters, Shobha (23 years, married), Sunita (18 years), Savita (15 years), Babita (12 years) and Guneetu (11 years), and one son, Onkar (7 years).

Shakuntala shares her experiences with soybean cultivation and its consequent yield before they became associated with the Responsible Soybean Programme.

“We used to plough our fields in the ‘desi’ (local) manner, with a wooden plough and bulls. We ‘broadcast’ the seeds, some of which caught on, and some didn’t. The yield of 3-4 quintals fetched very low rates in the ‘mandi’ (wholesale market).”

“The seeds were obtained from each other, and the weeding was done by hand. We had no idea what the right time for sowing was. As a result, sometimes, the sowing was done in time, and sometimes, it was late. The pesticides were expensive.”

Sunita, Shakuntala’s second daughter, adds, “We could get new clothes only after the soya crop had been sold. I always wanted that we should have a television at home, and nice clothes.”
Shakuntala shared that before the family became associated with the Responsible Soya programme, they had no savings.

Although Shakuntala is unable to recall how much seed quantity was used to sow in their 1.5 acre farm, she proudly shares that the yield from their 1.5 acre landholding has been “almost 15 quintals. The previous year it was 12 quintals. In the previous year, we made Rs. 35,000, and this year, we made Rs. 50,000. Out of this, we will invest Rs. 25,000 back into our fields, and save the remaining Rs. 25,000.” She credits this increase in yield due to mainly practicing the line sowing, seed treatment, and use of homemade pesticides.

With a smile Shakuntala says, “I now believe that the right knowledge is the only way to get a good crop.”

“I have learnt more because I also teach. I had no idea what seed treatment was earlier. As soon as I heard about the Responsible Soya programme, I wanted to join it. So, while other farmers joined in much later, we were one of the few to join the programme from the first year that it was introduced.”

“Earlier, we didn’t make enough money, so I had to work in others’ fields to cater to our needs. Now, we can easily buy seeds for our next crop, as our input costs have come down. We have used no pesticides since the last two years, with the ‘T’ guards proving most effective.”

The seventh standard ‘fail’ person shares that she loves to teach. “I started imposing a fine of Rs. 10 on every farmer of my group (comprising 14 members) who would not attend the meetings.

“Now everyone makes it a point to attend”, she says, adding that she faces no problems at all in dealing and interacting with male farmers.

The normally talkative Shakuntala is initially stumped, when asked what she would like for herself, if she makes good money from her soya crop next season. In the beginning, she says that “Sunita’s wedding is our first priority.”

After a bit of coaxing by Sunita, her plans, desires and wishes tumble out one after another.

“I wish to buy more land, and put a tube well on it, as the water in our well is at a very low level.”

“My children cannot study beyond the 10th standard, as the high school is 10 kilometres away. So I’d like to put them in a private school in future.”

“I wish I could build a toilet with a water tank (cistern) on top, and that my earnings from all my crops next year touch Rs. 100,000.”

At the entrance of Moolchand Vishwakarma’s house is a

**Case Study of Moolchand Vishwakarma**

little seating area, with a parrot in a cage suspended in one corner. It is a speaking parrot, but is moody, and exhibits his speaking skills only at will. Moolchand stays here with his wife Savitri, his sons Manoj (17 years), Virendra (12 years) and Saurabh (12 years) and daughters Priyanka (15 years) and Pragati (8 years). He owns 4 acres of land and 2 cows.

His house is a small simple one, with “no television, no ‘kapda peti’ (‘kapda’ meaning clothes, ‘peti’ meaning box; wooden or steel trunk to keep clothes), which opens cut into a courtyard, and is surrounded on all sides by rooms with low ceilings the outermost layer of which is covered with cow dung cakes.

Moolchand still remembers the first year that the Responsible Soya team came to his village. Before that, he had been growing soybean for 10 to 12 years. From his entire land, he obtained a yield of no more than 6 to 7 quintals, earning around Rs. 8000 to Rs. 9000, saving around Rs. 2000-3000.

“The first year that the Responsible Soya team came and spoke to us, I followed their advice only half heartedly. I planted soybean in 3 acres of my land, but did line sowing only in one acre. In the other two acres I used the ‘broadcast’ method as I had been doing in the previous years. I did not send a soil sample for testing, and I did not use any ‘T guards’ for pest control, and used homemade fertiliser only in that one acre. I wasn’t fully convinced of the methods that were being advocated.”
With a rueful smile, he shared, "I was stunned by the difference in the yield from the 1 acre in which I had partly followed the advice given to me. The yield from this 1 acre was 7 quintals, which was equal to the combined yields of the other 2 acres!"

"The second season, I followed every bit of advice I was given by the RS team, and the result was a healthy 22 quintals!"

"However", he added, "the yield this year from all 3 acres was only 18 quintals. This was because it rained immediately after sowing, so the seeds couldn't hold. My confidence in knowledge imparted to us is once again a little shaken, as the delay was due to the fine sowing method."

After a little probing, Moolchand shares, "Someone in my family (a granduncle) had expired, due to whom I was away for the crucial one week (around the 5th-6th of July 2010) when sowing was to be done. But I plan to follow the same method in the coming season."

"I follow all the steps I have learnt, like seed treatment, seed testing."

"The seed drill poses a problem at times, as it is not available on hire at the right time, and is very costly to buy. Also, a seed drill alone is of no use as one needs a tractor to attach it to. That alone costs around 4 to 5 lakh."

Talking about the impracticality of local implements like the "tiffin" (‘ti’ meaning three and ‘funn’ meaning teeth; manually operated agricultural implement with three teeth, used for sowing), he says, "One requires bulls to operate it, and they are expensive to keep, as there is no jungle nearby and hence no fodder for them."

Moolchand’s family will soon be moving into a new ‘pucca’ (permanent) house in the village, the lintel of which was laid on this ‘Diwali’ (festival of lights) and he will get his old partially " (temporary) house renovated. "This is going to be my single target."

"My eldest son Manej, studies in Satai (a town 10 km away from this village). I need to save money for his tuitions."

"I also plan to dig a bore well that will cost me Rs. 60,000 to 90,000, to be able to water my summer and winter crops sufficiently."

Case Study of Maiyyadin Kushwaha

Maiyyadin Kushwaha’s farmland is strategically located on the outskirts of the village right next to the tarred road. His little mud hut sits in the midst of his 6 acre farmland. His wife Manobai is busy digging the soil of one of his fields with a spade, preparing it for the winter crop of wheat. They are a little late in sowing it, but since winter has got delayed this year, they are lucky, and the crop will not get affected due to this. His elder son Umashankar (22 years) is also a farmer, while his younger son Virendra (18 years) is studying in Satai (a town around 10 km from here), and daughter Kranti (16 years) is studying in the 9th standard.

Maiyyadin has been cultivating soybean since the past 10 years. He would plant the crop sometimes in 4 acres and at other times in 5.

The first time that the RS team approached him, he refused to join the group. The reason was that, as part of the process of ascertaining the ownership of the land (Principle 1.2: Legal use rights to the land are clearly defined and demonstrable-RTRS Principles and Criteria for Responsible Soybean 1.0) their land records were being asked for. He was afraid that once he gave his papers for inspection, he may never get them back and someone may grab his land and exploithim.

It was his peer, fellow-farmer and community member Pyarelal Kushwaha, who convinced him to join the group. He had already seen the effect of the good practices followed by other farmers in cultivating responsible soybean. On Pyarelal’s say, Maiyyadin ploughed his land in summer, before the rains, making room for the moisture to seep deep into the ground. Then Pyarelal told him to sow only 30 kg per acre. This helped him save money on buying seeds.
“Earlier, I used a little 40 kg of seeds for sowing in 1 acre. I also spent an additional Rs. 2,000-4,000 on pesticides. He learnt how to treat the seeds being treated with chemicals so that they do not catch fungus.”

“In the second season, I used a chemical to kill weeds, but did not use any pesticide. The ‘T’ guard was most effective for pest control.”

Maityyadin claims that he is yet to make a profit by cultivating soybean, reason being that more than two years ago, he had taken a loan of Rs. 2 lakh from local money lenders to dig and build a well on his land.

“I wish I had met the ASA team earlier, as I would have learnt how to get finance on easy terms for building my well.

The first time he planted responsible soybean, “I used 30 kg of seeds per acre, and I got a yield of almost 8 quintals per acre. The second season, it was around 33 quintals”, although he doesn’t seem sure.

“I have not sold the soya in the ‘mandi’ (local wholesale market), as the buyers are giving me Rs. 2,000, while I expect Rs. 2,500 per quintal.”

In the next soybean season, Maiyyadin plans to grow soybean in 4 to 5 acres. He would like to pay off the loan that he took for building the well as soon as possible.

**Case Study of Sumit Sahu**

Sumit Sahu and his wife Bhuribai own a modest farmland spanning three-fourth of an acre, in addition to a cow and a buffalo. He has three sons, Sharad, who is married, Tanu, a matriculate (12 years), who runs his own business by running an oil extracting machine, and Shobha Lal (17 years), who is currently in the tenth standard.

Sumit was one of the few farmers who were recruited in the farmers' group by the Responsible Soya team in the first year itself. Before this association, he grew ‘urad dal’ (black gram) and wheat. His yearly income would be in the range of Rs. 10,000 to Rs. 15,000. The family could barely manage to meet ends meet, and they owned just one pair of clothes each.

“In order to attend even a single wedding at our relatives' places, we had to work in the fields of other farmers.”

Sumit had started cultivating soybean around 4 to 5 years ago, the yield of which was around 2.5 to 3 quintals.

The year that he became associated with the Responsible Soya team, he obtained a yield of 6 quintals. “I learnt how to treat the seeds with chemicals, make the 5 leaf mixture for spraying on pests. Ever since I became a part of the Responsible Soya programme, I have not bought a single pesticide.”

“In the second season, I got a yield of 7.5 quintals, and in the third, it became 8 quintals.”

Quite pleased with himself, Sumit says that he expects to get a yield of 10 - 11 quintals the next season, as the soil is getting better with each passing season.

“I removed the weeds with my hands, and left them in the fields. I was told that they retain moisture (in case it doesn't rain) and restore the nutrients to the soil.”

The year that he became associated with the Responsible Soya team, he obtained a yield of 6 quintals. “I learnt how to treat the seeds with chemicals, make the 5 leaf mixture for spraying on pests. Ever since I became a part of the Responsible Soya programme, I have not bought a single pesticide.”

“In the second season, I got a yield of 7.5 quintals, and in the third, it became 8 quintals.”

Quite pleased with himself, Sumit says that he expects to get a yield of 10 - 11 quintals the next season, as the soil is getting better with each passing season.

“I removed the weeds with my hands, and left them in the fields. I was told that they retain moisture (in case it doesn't rain) and restore the nutrients to the soil.”
Chhatarpur
Block: Nowgoan

Nowgoan town, in Chhatarpur district of Madhya Pradesh, was built by the British as an administrative centre for the nine districts falling under the region termed Bundelkhand. As a reminder of the past, till recently, the inhabitants would build their houses strictly following the government mandated distance from the road, which was rarely encroached upon. This is a unique thing in the smaller towns of North India. The city is said to have 126 crossroads, unheard of in any other similar sized town in the state.
Village: Tindani

The ‘Kushwaha’ community stays in one cluster of Tindani village, in the Nowgoan block of Chhatarpur district. Traditionally, the main profession of this caste has been growing vegetables.

Case Study of Saryulal Kushwaha’s

Farmer Saryulal Kushwaha’s face radiates a quiet ‘khushi’ (happiness in Hindi), as he sweeps his gaze over his lush green farm (a little over 4 acres), in the middle of which lies his little one room hut. His three cows and two bullocks chew lazily in the warmer than usual winter sun, his dog sleeps in the shade of the jackfruit tree, and his hen walks about the courtyard that is being plastered with cow dung by his eldest daughter Jyoti (18 years).

His wife R amplyari quickly grinds a ‘chutney’ paste with green chillies, coriander and salt, which she serves with slices of freshly plucked ripe green guavas. His son Pushpendra (17 years) and second daughter Geeta (15 years) sit on the dharri (mat), and listen to the conversation.

This year’s soybean crop has already been harvested and sold. The smiling faces of Saryulal and Rampyari reveal that they have got a satisfactory price.

As she passes the plate of guavas around, Rampyari shares that they have been growing soybean for the past five or six years. They used one acre of their land for soybean cultivation. Unaware of any planting technique, they would simply ‘broadcast’ (a method of sowing, where the seeds are flung manually across the ploughed fields) the seeds, as the time for sowing was limited (the soybean seeds are to be planted in the full immediately after the first monsoon showers). The seeds would fall at random, resulting in dense clusters of plants in some places, and sparse clusters elsewhere. The resulting crop was unsatisfactory, and in a bid to improve his family’s fortunes, Saryulal even migrated to Delhi with his family some years ago.

However, the poor living conditions in Delhi compared to those in the village forced the family to return.

“Our savings at the end of the soybean season would be a meagre Rs. 2000 to Rs 4000. I had to take a loan of Rs. 50,000 from local moneylenders to invest in the seeds, fertilisers and pesticides required for the next crop.”

Limited funds and lack of awareness meant that for the purpose of sowing seeds from the previous year’s home grown crop of soybean were used.

“I used almost half a quintal (50 kg) of seeds for sowing in one acre.”

Money was spent on fertiliser obtained from the government run society and pesticides. The yield was a meagre 4 to 5 quintals.

Two years ago, field staff from ASA came to Saryulal’s village and shared knowledge with the villagers on how to grow soybean in a better manner.

“When I followed their advice, I found that the same one acre of land now gave me a yield of 8 to 10 quintals.”

Speaking about the quality of seeds, he says, “Earlier, all the villagers would use whatever seeds were available from the previous season’s crop. Then ASA staff asked us to try out better quality seeds.”

“We had no idea that seeds were to be tested before sowing. We would learn of their quality only when the plants grew. Now, we could test the seeds before sowing them in our fields.”

Pointing to a little shed under which now lay saplings of other plants, he says, “It was here that I took around 100 of the seeds that we were given, mixed them with trichoderma (a fertiliser), and germinated them on a plank of wood covered with a moist rag. Only if I saw that around 70 of them had germinated did I go ahead and plant the rest in my fields. In case less than 100 seeds sprouted, I was told I should return the whole lot, provided I had a bill of the purchase.”

Narrating his experience of asking for a bill, Saryulal says, “Initially, the shopkeeper used to ask me why I needed it, and that I would have to pay extra for it. Now, because everyone has started insisting on one, he gives it without a fuss.”

Further showcasing his newfound knowledge, Saryulal shares, “It was the first time that I heard of line sowing (sowing in regular lines with the help of a mechanical implement called the seed drill). I had seen my father and grandfather use only the broadcast system.”
“The best part about line sowing was that weeding became a much easier affair,” says Saryulal. Taking out a cycle hoe from behind the well wall at one end of the courtyard, Saryulal runs it over the ground to demonstrate.

“Now, because the seeds are all planted in one line, I can see the weeds coming up and can flatten them with this hoe before they become too big.”

“To plant the seeds, I used a seed drill mounted on a tractor, which was hired at the rate of Rs. 400 per hour. On an average, it takes around 40 minutes to sow in one acre with the help of the seed drill.”

“I planted one line of arhar (pigeon pea) with every eight lines of soybean, so that I could get an extra crop. The resulting crop was luscious and the soybean of a good size and quality.”

Expanding on his present status, Saryulal reveals, “I now have no pending loans, and my savings from the past two years are around Rs. 80,000. I have planted 200 trees of ‘amla’.

“From the money that I earned, I got the well on my farm renovated in 2009.”

“On the advice of the ASA staff, I have also diversified cultivation to include vegetables like brinjal, tomato, chillies and peas, which fetch me a good price in the local market. I now grow wheat in winter, moong (green gram) and urad dal (black gram) in summer and soya in the monsoons, along with seasonal vegetables and fruit.”

“Ever since I started cultivating soya in a better manner, I find that my other plants are also becoming better.” Pointing to the guava trees laden with the luscious fruit, he says, “The plants are now thicker, and yield more fruit.”

Nodding towards his children, Saryulal says, “Earlier, necessities like woollen clothes were put off for the next season. Now, I can buy clothes for my children when required. I am educating all three of them and can hope to marry them off well.”

Elaborating on his future plans, Saryulal shares, “In the coming season, I plan to save Rs. 40,000 after deducting input costs. I’m also thinking of buying 2 buffaloes, a drip irrigation and a sprinkler system so that I don’t have to depend on the rains. I will also be planting papaya trees as they fetch a good price in the market.”

“Now, instead of growing soybean in one acre, I will grow it in two acres.”

Case Study of Bhagirath Kushwaha

The path to the 6 acre farm lies at the corner of a guava orchard, and opens out into a flat hardened bit of ground, paved with cow dung and covered with a ‘durrie’ (mat). On one side of this hard ground stands his house, and on the other, the entire farm. A plateful of roasted whole groundnuts lies in the centre of the ‘durrie’, and his large family including his wife, 5 children and parents, sit scattered all over the open space.

On most days, his wife Kusumdevi, along with their daughters Kaushalya (18 years), Rachna (10 years) and Samantha (7 years), and sons Lalu (8 years), Deepak (2 years) live in the family home in the main village along with the rest of the Kushwaha community. His mother Saryubai and his father Ramdayal Kushwaha stay both at the farm and at the village house. The family owns 2 buffaloes, 2 bulls and 2 cows.

Ramdayal. Bhagirath’s 50 year old father speaks of the days when they grew other crops.

“In my days, we grew urad, til, moong, millets, jowar. We used to sell less, and grow mainly for our own consumption.”

“To manage our expenses, we almost always had to take a loan from the moneylenders or any big landowner from the village. We also took seeds on loan, and returned it with interest- e.g., if we took 1 quintal of seeds, we would have to return it with 1.25 quintals.”

On the topic of irrigation, he shares, “we had no idea of when was the right time to water the crops. Whenever we found the ground hard, we would water it. We had no idea what soybean was.”
Bhagirath, who has studied in the local village school up to the 5th standard, adds that after coming in contact with ASA, he has learnt so many new things that his father had never known. For the past two years, he has grown soybean on 4 acres of his farmland.

“I plan to marry my eldest daughter by May or June 2012, and I want to give her husband a motorcycle, some furniture and some hard cash too. By next January or February, I plan to save an extra Rs. 30,000.”

Kusumdevi, Bhagirath’s wife shares that the days of lack of enough food to eat are over, and now they have ‘ghee’ (clarified butter) too.

Bhagirath wants to learn good practices from ASA about other crops too.

**Case Study of Bhagirath Kushwaha**

Ramkumari has walked up to Bhagirath, a fellow villager’s guava orchard to share her experiences in growing soybean the responsible way over the last two years. Ramkumari’s husband Laxmi Kushwaha is away in Delhi, working as construction labour, leaving behind his younger son, Hariprasad (22 years) to help his mother to tend to their farming.

Their elder son, Bhagawandas (25 years) is a graduate in Computer applications, as is his wife. Both work and live in Nowgoan. Daughters Rani (23 years) and Savitri (18 years) are also married. Despite wanting to study further, Hariprasad could not do so beyond the 10th standard, as, in his father’s absence, he helps his mother tend to their farm. The family is looking for a suitable groom for the youngest daughter Mankungar (16 years).

Ramkumari has sown soybean in one acre. She is one of the few women in the village who has learnt the process of growing soybean following the practices suggested by the ASA team.

“We were taught to test the seeds for their ability to grow, by mixing 100 of them with Bavistin, and leaving them overnight on a plank covered with a moist rag. In case around 70 germinated, we could go ahead and use the entire lot.”
As she tends to little Hargovind, one of her daughter’s infant son, she shares, “The 5 leaves that we mixed to spray as pesticide were: sitafal, dhatura, besharma, and neem. We have to mix them with water, and leave them in a ‘matka’ (earthen pot) buried in the earth for around 10 days. Then we take one litre of this mixture and add it to 16 litres of water (one tank full of the spray can), and spray it over our crops. We also use rotted buttermilk in the same manner. The bigger pests get repelled in this manner.

“For the smaller pests, we use T-guards. I used 52 T guards on my land.”

However, neither Rampyari nor Hariprasad has any idea of how much money the family has saved over the past two years while following good practices of growing soybean. Her husband always comes home in time to harvest the crop and sell it in the local ‘mandi’ (wholesale market).

In the next Kharif season, she plans to sow soybean in two acres of her land.

Village: Sigrawankalan
Case Study of Hiralal Kushwaha

Just a few kilometres away from Tindari village in Nowgoan block of Chhatarpur district is the village of Sigrawankalan Hiralal Kushwaha, son of Munnaalal Kushwaha, proudly states that his village is one of communal harmony, where every family is educating their children, and there is no alcohol problem.

Munnaalal Kushwaha’s is perhaps one of the few houses in the village that has two wells, side by side. His two daughters Kishori and Pannabai are married, and his two sons Hiralal and Murli live with him and their families in a cluster of three houses surrounding the wells. They own around 3 acres of land.

His daughter-in-law, along with the other young girls in the house is busy threshing groundnuts on the roof of their house (part of which is ‘pucca’ or permanent), silhouetted against a clear blue sky. Munnaalal also works at the DPIP (District Poverty Initiatives Project) nursery. His son Hiralal narrates an interesting story of their early experiences with cultivating soybean.

The family, along with some other villagers, had begun growing soybean almost 8 to 10 years ago. Then, one season, the crop was attacked by an unknown pest, and it was rumoured that this pest killed people too. On hearing this, the people of Sigrawankala became afraid to even touch the crop. They did not harvest it, but left it to be eaten by animals. Most villagers left soybean cultivation after this, and returned to it only two years ago, when ASA approached them.

Reflecting on the earlier practices followed, Hiralal shared that soybean cultivation was more or less a thoughtless affair. Farmers would plough, ‘broadcast’ the seeds, irrigate (if they felt the need) and harvest, just going through the motions mechanically, and were resigned to a meagre yield.

When the Responsible Soya team first approached the villagers, there was a lukewarm response, and a sense of disbelief. They had seen enough people from the government and other agencies come and talk about new things but who didn’t show after that initial meeting. The response picked up when the villagers realised that the Responsible Soya team kept their word, and were there for every milestone during cultivating the crop.

With amusement at their own lack of awareness, Hiralal narrates how earlier, when they were asked to send the soil from their land for inspection, they would just scoop up some mud from anywhere in the fields, fill it up in a bag and send it.

Bending down to the ground, Hiralal confidently demonstrates, “The proper way to do it is to first, clean the top layer of soil. Then make a ‘V’ shaped hole, and dig out around 3 to 6 inches of mud. Keep dividing this into four parts, until one is left with around 500 grams of mud. Then bag it with one’s name, the name of the village, what one is planning to grow, what was grown earlier and the date of taking the sample.”
The input cost of cultivation dropped drastically in the first season itself of cultivating responsible soybean.

"Whereas earlier, for sowing, we would use 50 to 60 kg of seeds in one acre, now we use only around 30 kg. The seed treatment that we are taught prevents from them getting fungus."

"We never knew it was so simple to get rid of the pests from our fields. With the help of ‘T’ guards, the cost of pesticides has almost become nil."

Hiralal, who has passed his eighth standard, shared that the income from one acre of land from a soya harvest never exceeded Rs. 6000, whereas now it touches Rs. 15,000.

"After deducting input costs for the next season, there is a net profit of Rs. 5000 to 6000 per acre."

With the confidence that follows success, Hiralal says, "Even though the seeds marketed by companies are more expensive, we still buy them as they give a good yield."

"I plant maize along with the soya crop, as the maize leaves lessen the force of the rain falling on the soya crop. In addition, since there is a large difference in the respective heights of the plant, they get equal amount of sunshine."

Narrating the progress that the family has seen in the past two years, Hiralal says, "All three of my children go to private school in Naoogaon, the Gyanashala Madhavi Vidyalaya, which, along with transportation, costs me around Rs. 200 to Rs. 250 per child per month. In addition, they take private tuitions at home as well. I couldn’t have afforded this earlier."

The increase in the Kushwaha household income is visible in other areas as well. "We bathe with soap daily now. We spend almost Rs. 100 to 150 on mobile phone bills."

Hiralal’s future plans include converting his half (temporary) house to a fully ‘pucca’ (permanent) one, and may lend money to his needy relatives.

"If I can get hold of two or three people, I may even buy a tractor, as the one on hire is sometimes not available when I want it. (A tractor in today’s date costs between Rs. 4 to 5 lakh). I also want to buy a gold nose pin for my wife."

Hiralal has many more expectations from the RS team. "I want to know how I can get financial support to buy a tractor. I also want to learn more about the technical aspects of farming."

Case Study of Kishanlal Khuswaha

Kishanlal Khuswaha, also from Sigravantala, is the son-in-law of the village. He hails from nearby Uttar Pradesh (the village is barely a few kilometres away from the border). His father-in-law has no sons, only two daughters, one of whom is his wife, Benibai. He was convinced to stay and help the family tend to their 2 hectare farm. He is known to be a diligent and committed farmer, who is almost always found somewhere on his farm. At this time of the year, it is covered with small wheat plants, giving it the appearance from afar of a well maintained lawn.

Kishanlal and Benibai have a daughter Ramdevi, who is married, and two sons, Ram Kumar (16 years) and Bhanu Pratap (14 years), both of whom are studying in the local village school in the 11th and the 8th standards, respectively.

Kishanlal has been deeply influenced by fellow villager Hiralal’s experiment with the cultivation of soybean. Earlier, he had grown soybean in two thirds of an acre, and groundnuts in the other one third. The groundnuts required a high input cost, and yielded a low output.

Sitting on the edge of the field, with his sons standing behind him, Kishanlal says, “Earlier, I grew urad dal and til (sesame), but because I didn’t know the proper techniques, it yielded no fruit, and was left with only the stems.”

“Now I know all about homemade pest control methods”, he says, going on to describe how he fermented buttermilk to spray on his soybean crop. “Ever since I learnt of this method, I have spent no money on pesticides. I have used cow dung as manure, and warded off insects by using the ‘T’ guard.”
“This year, the yield of soybean has been only 7.5 quintals. Next year, I expect it to go up to 8.5 quintals. Last year, I sold the soybean crop for around Rs. 1900 per quintal.”

Smilingly, Kishanlal shares, “Last season, when relatives visited us on ‘rakshabandhan’ day (a festival in North India when sisters tie a ‘rakhli’ or a band, on the wrist of their brothers, to remind them of their duty to protect them always), and saw the benefit I had reaped from my soya crop, they asked me to share my knowledge. They took away breeder seeds from Nowgoan to plant in their fields. Now they too have reported an increase in production.”

He adds, “If get calls like, ‘we’ve put up the ‘T’ guards in the fields. ‘When do we take them off?’

In future, Kishanlal Kushwaha plans to grow soybean in a larger area, but his first priority is to dig a well on his land. He plans to educate his sons up to college so that they can get good jobs.

Village: Sukwan
Case Study Vinod Patel

Farmer Vinod Patel is also a teacher, teaching Hindi and Mathematics subjects to primary classes at the local school for the past two years. His family consists of wife Draupadi, daughter, Kajal (3 years) and son Kapil (2 years). He owns 4 acres of land, 1 acre of which he has used to cultivate soybean.

“I grow soybean, urad dal, til and peanuts. The Krishi Vibhag (Agriculture Department, government run) people did tell us a few things about the right method of sowing, etc., but the farmers did not believe them. Despite some of the farmers knowing that seeds had to be treated before sowing, they were not motivated to practice the method. Also, the chemicals used for treatment were not easily available.”

“Once, when we used the seed drill for sowing, it rained, and the holes made by the drill filled up with water, ruining our seeds. So the few farmers that had started the practice, stopped. Now, we feel confident of following these measures, because there is the Responsible Soya team always there to help us out with their timely advice and guidance. We feel confident they will suggest a suitable alternative to any problem that crops up.”

“We learnt that the holes made earlier were too deep, and that they should not be more than 1-1.5 inches deep. Due to this, even if it rains, the soybean seed does not get destroyed.”

Vinod demonstrates a unique way of measuring the amount of ‘trichoderma’, the chemical used in seed treatment, to be added to the seeds.

Taking out a matchbox, he says, “The Responsible Soya team has told us that the box, with the matches removed, can carry up to 3 grams of trichoderma. We have to mix this amount in 3 kg of soybean seeds, only after putting on gloves, and wearing a mask.”

“After sprinkling it with water, we leave it for around half an hour, then put them in the seed drill, hired at around Rs. 500 to 600 per hour.”

“One of the practices that have reduced our input cost is the system of line sowing, ensured by the use of the seed drill. Earlier, we needed to hire manual labour every 25 days for weeding. Now, because all the plants are in a line, we use the cycle hoe to trample and flatten the weeds, which become good manure for our soya crop. The cycle hoe belongs to the group, and is used by everyone turn by turn.”
The region has a high population of parrots, who used to pick out the seeds from the fields, as they settle on top due to the earlier method of 'broadcasting' them. "Now, because the seeds are sown at least an inch deep, they are safe from the parrots and other birds. This bit of knowledge has proved invaluable."

The produce has grown from 2-3 quintals an acre to around 6-7 quintals an acre. The earnings have similarly risen from a meagre Rs. 5000-6000 per acre to almost Rs. 12,000-15,000 per acre.

The future plans of Vinod Patel include becoming part of the Producer Company that is soon to be set up. He expects that with the setting up of this company, there will be enough fertiliser and seeds for all farmers, and available at the opportune moment.

**Case Study: Ravindra Mishra**

Ravindra Mishra, also from the same village, owns 1 acre of his own land and 2 acres on a shared basis (the land belongs to someone else, but Ravindra works on it, the crop being divided equally among the two). Ravindra grows soybean on the entire land.

His family comprises of his wife, his daughter, Sneha (5 years) and his son Krishna (2 years). Sneha goes to a private playschool in Nowgoan.

Ravindra started cultivating soybean almost 4 to 5 years ago, but was not satisfied with the yield. Then the Responsible Soya team approached him and others in his village, asking them to try out better seeds. The yield in the first year jumped from 2-3 quintals to 5-6 quintals and in the second year to 7-8 quintals.

Ravindra, however, still has some issues, he expects help with.

"The seeds that we were told to buy were the 9305 variety which are good, but we found that they are adulterated with the 335 variety (a lower quality). I have to make my own arrangements to take the crop to the local 'mandi' (wholesales market), and the rates were not up to my expectations. This may be due to the fact that I could not obtain good quality seeds on time. Also, in the first year, I did not use the cycle hoe for flattening the weeds, which may have increased my cost of weedicides."

Ravindra also owns a tent business, where he hires out tents and chairs for functions like weddings, etc. His annual profit now touches almost Rs. 30,000 per year.

Elaborating on his future plans, Ravindra shares, "I will now grow soybean on my own land, as well as the land I till for another farmer. I have a well on my farm. I expect to produce up to 10 quintals of soybean per acre next year. I hope the Responsible Soya team will help me procure good quality seeds for the next season."

**Case Study of Mamta Misra**

A beaming Mamta Misra welcomes visitors in her ‘pucca’ (permanent) house in Sukwa village. She is the wife of farmer Rakesh Misra, who owns 1 acre of land, and tills around 4 acres of another farmer’s land. He is currently away in the fields. Her son Atul (14 years), and daughters Ritu (11 years) and Ruchi (11 years) share their house with the families of uncles, the brothers of their father Rakesh.

There is a heap of sacks filled with soya lying in the verandah of the house, which hasn’t been sold yet as they are expecting a price above Rs. 2000 per quintal for it. Since the past two years, their household income has steadily risen on account of good yield of soya, among other crops like wheat, etc. Although Mamta is unaware of exactly how much money has been made with the sale of the previous year’s soya produce, she proudly displays the most recent possession of the family-a motorcycle. She shares, “It cost us Rs. 50,000, which we purchased without taking any loan.”

“No one in our family has a loan outstanding against them. Though we do not have much savings yet (just Rs. 4000-5000), as all that we earn is spent on the farm, and our household needs, we hope to increase our income in the coming seasons.”
Tikamgarh district, lying in the northern part of Madhya Pradesh, has a rich and chequered history, not all of which is chronicled. Said to have changed hands from the Mauryas, Guptas, Chandelas, Khangars and the Bundelas, the region is dotted with monuments substantiating the claim.

The farmers here have traditionally been growing millets, maize, and wheat. Soya was introduced here almost a quarter of a century ago, but most farmers have seen it being grown or grown it only for the past 15 or 16 years.
Village: Kanti

Kanti village is close to the Jamni river, a tributary of the Betwa and the Dhasan rivers, and a big source of irrigation in the region. It also has the proud distinction of being awarded the ‘Adarsh Gram Puraskar’ (Ideal Village Award) by the Zilla Panchayat (District Administration) of Tikamgarh.

Case Study of Nand Ram Kushwaha

Farmer Nand Ram Kushwaha’s house is on the main road of the village, one of its doorways shaded by an overhanging bougainvillea plant. He lives here with his wife Sukhmati, his elder son Brijesh (23 years), who is married to Anganwadi Worker-AWW (worker in a government-run crèche) Kamla (both Brijesh and Kamla live with their parents; Brijesh is also a farmer) and his younger son Mahesh (16 years). Nand Ram also has a daughter, Rakumari (literally meaning ‘princess’), who is married.

Behind his house lies his 10 acre farm, where he now cultivates soyabean on almost 10 acres.

The facade of Nand Ram Kushwaha’s house is beautifully decorated with a painting of Lord Ganesh, the deity whose blessings are invoked when starting new initiatives.

It is not surprising therefore, that Nand Ram, who has studied up to the 5th standard, was curious to learn all about the new programme associated with cultivating soyabean initiated in his village by the Responsible Soya team, and was one of the first to be recruited. As he sits on a plastic chair in the neatly paved front portion in front of his ‘puccha’ (permanent) house, he recounts his experiences with growing soyabean, both before the Responsible Soya intervention and after it.

Nand Ram began cultivating soyabean more than 10 years ago, in 4 to 5 acres of his land, when he assumed charge of the farm after his father’s death at around the same time. The family did not own a tractor then, and bulls were used to plough the land. In case the rains failed, they used the ‘Rehmat’ system (The Persian Wheel: centuries old mechanism that involved bulls moving a wheel attached to another one which had a chain of buckets filled with water attached to it).

“I used home grown seeds to sow, and had no idea how and where to get good seeds from. The government run society would sometimes provide seeds. While I would use 40 to 50 kg seeds per acre for sowing, the net yield was never more than 3 quintals per acre. There was also the constant fear that rain might wash out the seeds.”

To support the income from soyabean, Nand Ram also grew vegetables, millets and wheat.

Although he doesn’t remember times of great deprivation or unfulfilled need during his childhood, he was very eager to improve the yield from his fields by learning new techniques.

When the Responsible Soya team approached farmers from the village, Nand Ram realised that they were about to learn something new. So from the first year of the introduction of the Responsible Soya programme itself, he was careful to follow their advice and instructions as closely as possible.

In the first season, he chose to plant soyabean in 7-8 acres of his land, and engaged in summer ploughing. He took the seeds provided to him by the team, and learnt how to treat the seeds and to test them for germinating a hardful (roughly about 100 seeds). “We learnt not to sow seeds without treating them first with Trichoderma or other chemicals, so that they do not catch fungus.”

“We were told not to immediately sow the seeds, but to wait for the first rainfall or showers. Then we were asked to sow between the first and the second rain spell.”

“The first year I cultivated Responsible Soya, I did not use a seed drill. This was because in one hour of using the ‘broadcast’ method, I could sow 2 acres; whereas with the seed drill, I could manage to sow in only 1 or 1.25 acres. As a result, the yield was not more than 5 to 5.5 quintals per acre.”

“In the second season, I decided to grow soybean in 10 acres of my land, and follow all the advice given to me, as I realised it was completely free, and aimed at our benefit.”

Holding out a report in one hand, Nand Ram says, “I got a soil inspection done by the KVK (Krishi Vigyan Kendra or the Farmer Science Centre) before I sowed. This revealed that my land was deficient in phosphorus, which I corrected by buying SSP (Single Super Phosphate) and adding it around 3 sacks per acre to the soil.”
“Then I engaged in deep ploughing in summer. I decided to cultivate soybean in 10 acres, and for sowing, I used a seed drill, sowing seeds in some fields at a distance of 9 inches, and in some others at a distance of 12 inches. On the advice of the Responsible Soya team, I purchased the JS 5560 and JS 9305 variety of seeds from the Farmer Producer Company.”

Smilingly, Nand Ram shared that along with cultivating soya, he also cultivated certain helpful habits.

“I started asking for a bill from the shops that I purchased products. I also learnt how to protect myself from harmful chemicals by wearing these before touching any,” he says, demonstrating the same by putting hand gloves on.

The result of all this attention to detail was heartening. In the second season, Nand Ram obtained a yield of almost 49 quintals. Encouraged by the excellent yield, in the third season of the Responsible Soya programme and at the advice of the team, Nand Ram decided to use the “Broad Bed Farrow” for sowing.

“I had seen how healthy the plants became if they got space to grow, and the BBF ensures a distance of 18 inches between each plant. This also meant that less amount of seeds—about 30 kg per acre—were required.”

“Since the slope of the land used to let the water drain out, I was advised to make small retainers along each line sowed to retain the rainwater.”

“The amount of weedicides used dropped, from 250 ml per acre to 200 ml per acre. Also, it was much easier to weed, as there was much more space, and I used a cycle hoe for that purpose.”

Nand Ram shares an interesting change that line sowing brought about. “Earlier, because we followed the broadcast method of sowing, the plants would be scattered in a disorderly manner all over our fields. Due to this, when we hired labour for weeding and harvesting, it was impossible to check how much work they had actually done. Now, because the plants are in orderly lines, we can actually see the amount of weeds removed and plants harvested.”

The resulting yield per acre was almost 10.5 to 11 quintals. “The good rainfall of 2011 also helped and the topography ensuring that no excess water remained.”

Nand Ram makes sure that he attends each and every meeting that the team holds, and is highly appreciative of the fact that a member from the team visits them almost 5 to 6 times a month, and are especially there for every milestone in the process.

His future plans include, like any other parent anywhere in the world, the education and the marriage of his children.

“In 2010, I bought a tractor with the money earned from the soybean yield. It cost me Rs. 4, 62,000. I now plan to buy a tractor trolley that will cost me Rs. 100,000 plus a Broad Bed Farrow Machine.”

“I also wish to buy land in Tikamgarh (block) and build a house there. I had wanted to buy it the previous year, but buying the tractor was higher priority. I would like to buy agricultural land too, but it is very expensive now, almost Rs. 200,000 an acre.”

**Case Study of Hazarilal**

Hazarilal, the 25 year old son of Dharam Pal and Ganeshi, is a shepherd-farmer, as is evident by the numerous little lambs wandering around or sleeping in the sun beside his cluster of mud huts. Hazarilal has two brothers, Mohan (21 years, married to Rani) and Rampal (15 years), studying in the 9th standard, and a married sister, Manta. The family has a landholding of 2 acres.

Hazarilal’s father, Dharam Pal is lame, and therefore cannot farm, but one wonders how Hazarilal farms and shepherds, as he has only one arm, the right one. He lost his left arm as a child, while learning to cycle. Due to the lack of timely and proper medical attention, and improper application of a ‘poultice’ locally, gangrene set in, and to save it from spreading, the injured arm had to be amputated.
A graduate in Geography, Political Science and Sociology from Tikamgarh, Hazarilal was willing to try out some of the new methods of farming that were being suggested by the RS team.

"Earlier, I used to grow wheat, gram etc. I started growing soybean around 7 to 8 years ago in one acre of my land, by watching other farmers around me. I would get a yield of 4-5 quintals per acre."

Around three years ago, Hazarilal obtained a Kisan Credit Card in a scheme initiated by the Government of India and NABARD (National Bank for Agriculture and Rural Development) with the help of which he took a loan of Rs. 15,000 to purchase a pump (which costs about Rs. 25,000, but the farmers can avail of a subsidy for Rs. 10,000) for his well. He has no other outstanding loan.

In the first season of cultivating Responsible Soybean, Hazarilal sowed soybean seeds in one acre of his land.

"Although I followed the deep ploughing method advocated, I did not follow the method of line sowing. 15 days after sowing, I administered the weedicides ‘Pursuit’, as I was advised. I did not make any organic pesticide, and neither did I use ‘T guards.’

The resulting yield was around 5 quintals, marginally more than what it used to be earlier. “I noticed that this time the seed size was larger than in the previous years.”

Encouraged by this small observation, and by the fact that there was no harm involved in following the methods suggested, in the second season, Hazarilal went by the book.

“I deep ploughed my field (once again, I planted soya in one acre), treated the seeds with fungus resistant chemicals before sowing them, germinated a handful (around a 100) to test their quality, bought seeds from the market (from Ramraja Company; JS 9305 variety) instead of using those from the previous year’s produce, and used the seed drill to sow them in lines, each at a distance of 12” apart.”

By doing this, Hazarilal found that, “Weeding was easier. Not only was the quantity reduced (I used 100-150 grams less weedicides than the previous year), but administering it was also easier.”

“I used the ‘T’ guard this time, and also prepared the 5 leaf (made from locally available leaves of the plants of neem, dhatura, acauga, pumpkin and besharam) pest control mixture.

All of Hazarilal’s efforts paid off, as the resulting yield was a heartening 7.5 quintals.

Buoyed by the experience of two years, in the third season, Hazarilal once again repeated all the methods and practices that he had followed in the previous year. He also increased the plantation area to 2 acres, and got a total yield of 16 quintals (8 quintals per acre).

"Out of this, I have sold 14 quintals for Rs. 28,000, and saved 2 quintals.

Pointing to the cluster of mud huts behind him, Hazarilal shares, “In the coming years, I plan to convert these three “(temporary) houses to a ‘pucca’ (permanent) ones,” pointing to an incomplete structure beside him, “the walls of which are already up. Just the roof remains to be built now.”

“In the past three years, I have seen how my fields have started producing progressively better crops, and next year, I expect an even better harvest than this one.”

Hazarilal is not aware of any scheme that the government has initiated for the handicapped.

**Case Study of Ghanshyam Lal Ahirwar**

Among stories of success shared by a majority of farmers after becoming associated with the Responsible Soybean programme, **Ghanshyam Lal Ahirwar’s** may be one of the few families that, after initial success, were unfortunate to experience bad luck.

The entrance to his house is being smeared with watered cow dung by his younger brother’s wife. The first room of his house is like a parlour, with sacks of grain lying in one corner, a ‘diwan’ (a large wooden bed that is also used for seating), put up against a wall, and a couple of plastic chairs lying around. This room opens onto the main courtyard, with the kitchen on one corner, and the main living quarters behind it. Ghanshyam, an uneducated farmer, and his brothers stay in separate houses, but close to each other. His **wife Komal**, stays in this house, with their children, sons **Raj Kapoor (25 years, married to wife Sudha)**, **Santosh (18 years, studying in the 12th standard, and married to Draupadi, also studying in the same class)**, **Munnal (16 years, studied up to the 5th standard, and now a farmer)**, and **Prince (5 years)**.

His second son wants a government job, for which he has joined computer classes. To support his family and their aspirations, Ghanshyam works as a labourer in the fields of other farmers, despite having his own land of 3.5 acres.

Ghanshyam remembers not too long ago, when he had hardly any savings (barely around Rs. 2000-4000).
“There was no option but to take loans from moneylenders, to run our day to day lives, which could be any amount ranging from Rs. 10,000 to 20,000. We paid an interest of Rs. 3/- per Rs. 1000/-.”

“At times, when there was no money, and the crop was poor, we also paid back in wheat.”

The first year that the Responsible Soya team approached farmers in the village, Ghanshyam planted soybean in one acre of his land.

“They had approached us just before the rainy season, and advised us to do deep ploughing, and use the seed drill for line sowing. I hired a seed drill at the rate of Rs. 350 per hour in order to do so. They also gave us seeds, gloves and a face mask.”

The resulting yield was an extremely encouraging 11 quintals per acre, of which Ghanshyam sold 10 quintals and kept a quintal back for sowing the next year.

“I was congratulated by the entire team, as very few got this yield in the first year of the programme! I felt the main reason for my success had been deep ploughing.”

Extremely encouraged by this performance, Ghanshyam shares, “In the second season, I used the seeds kept back after last year’s produce. I planted soybean in two acres, using 80 kg, and even sold 20 kg to my neighbour at the rate of Rs. 18 per kg.”

The only practice that Ghanshyam said not to follow in the second season was seed treatment, as he had run out of money to purchase the chemicals. For the same reason, he was also unable to buy fertiliser. “Apart from these two things, I followed every other method advised.”

The yield was a shocking 10 quintals, almost the same that he obtained before he became associated with the programme.

Undeterred, when the next season came around, Ghanshyam used some money he had saved from the sale of his wheat crop, this time planting soybean in 3 acres.

“I used 1.1 quintals of seeds for sowing, 2 bags of the JS 9305 and one bag of the JS 5560 variety. Before sowing them, I deep ploughed my fields, treated the seeds as taught to us, and even administered fertilisers.”

“Unfortunately, the rainwater washed off the fertilisers and the crop was destroyed. Moreover, much of my land is undulating, that doesn’t allow the water to escape. As a result, the rain water collected in places, and my crop rotted.”

The past years have literally been back breaking for Ghanshyam, as he shares, “I was operated on my spine on the 9th of May 2011 for paralysis of my lower limbs, which is why I limp when I walk. The operation was done in Gwalior City (a prominent town of Madhya Pradesh, around 200 km from Tikamgarh) that cost Rs. 150,000.”

Despite the setbacks for two consecutive years, on being asked whether he will continue to cultivate soybean, Ghanshyam and his wife Komal’s faces light up as they share, “Definitely! So what if these two years were bad. Next year will be better!”

Sitting on his large wooden ‘diwan’, surrounded by his children, nephews and nieces, Ghanshyam points out to the bags in one corner of the room.

“I still have some soybean seeds left from last year. I will not sell these because at the time of sowing, seeds are expensive to buy.”

“This house is ‘(temporary) and almost 6 years old. I plan to convert it into a ‘pucca’ (permanent) one, and also enlarge it, as this one is now not big enough for all us 6 brothers. But first, I plan to buy a motorcycle. It is very useful to reach quickly from one place to another in case of emergencies.”

“If I make enough money, I will buy more land.”

Pointing to a water pump, Ghanshyam says, “I had started digging a well a year ago, and had even bought this pump for it, but since I ran out of money, could not continue. In case I earn good money, I will finish the task of digging the well.”

“Now I take water from my neighbour’s well for my other crops, and share half my produce in return.”

**Case Study of Channoolal Ahirwar**

Channoolal Ahirwar, over 50 years of age, sits outside his spacious home, along with his fellow farmers, enjoying the warmer than usual winter morning. His son Viran (35 years, married) has migrated to Delhi. His younger son Santosh (25 years), works as a labourer, and his daughter Mamta, (20 years) is married. Channoolal owns 4 acres of land.

Channoolal used to grow soya, along with urad, and wheat, but, the yield was “not satisfactory.”
He barely made a profit of Rs. 2000-3000 per season from the soybean crop, before he became associated with the Responsible Soya programme.

"I took loans from moneylenders to run my household expenses. In fact, I had no idea of how much in debt I was."

The first year that the Responsible Soya team came to the village, Channonal learnt of new techniques like line sowing.

"In the first season of cultivating Responsible Soya, I did not adopt the method fully. I was given 20 kg of seeds by the team to plant in half an acre. I used the seed drill for line sowing in half my land, while, in the other half, I used the old method of 'broadcast' (a method of manually scattering the seeds)."

Channonal shares that he was not fully convinced with the techniques the team was advocating. "Who knew whether they were right or wrong about all this?"

"However, I used fertiliser as I was told, and regularly did weeding. The yield from just half an acre was 4 quintals!"

Encouraged by this result, Channonal now decided to plant soybean in 1 acre. He deep ploughed his field, bought seeds with the advice of the team, and used the seed drill, hired at the rate of Rs 350 to Rs 500 an hour ("when the demand is high, the rates shoot up!"). He treated the seeds with the chemicals advised and even tested the seeds.

Channonal proudly shares, "Out of a 100 seeds that I tested by germinating, only 2 did not sprout!"

"Once my plants had grown, I also used the 'T' guards that we were taught how to make. Weeding was much easier due to the line sowing method."

The resulting yield was 9 quintals, while in the third year: it was 9.5 quintals, by using only 30 kg of seeds.

"I am repenting that I cultivated soybean in only 1 acre of my land. However, in the coming season, I plan to grow it in 3 acres."

Explaining the lie of the land, Channonal shares, "The rainfall was in excess this year. And my land is such that, it doesn't let the rainwater escape."

"The good thing is that I now have no loans outstanding against me. I plan to marry my son, and I need at least Rs. 200,000 for it. I should be able to make at least Rs. 100,000 from the sale of all my crops in the coming year."

Channonal however, admits that though they are taught the importance of taking a bill after every purchase, he has still to adapt this practice.

"I wish there was some way of making fertilisers available at the right time and at the right price."

He also feels that the prices they are currently being offered for their crops, including soybean, are not high enough. "Prices should increase, or farmers like us will be finished!"

---

**Village: Nadia**

This is a first village of Tikamgarh district where farmers adopt ridge and furrow method of seed sowing and farmers got almost double production. This is a very good moisture utilisation technique. Nadia village farmers accept this is a very good technique of soyab cultivation and they plan to purchase own ridge and furrow machine for minimised the risk from uncertainity of monsoon.

**Case Study of Dayaram Yadav**

The double storey house of Dayaram Yadav is probably one of the most colourful ones in the village. The walls of the ground floor are blue, with its doorways having a yellow and green border of diamond shapes. The first floor has a white base, and a facade of walled up arches, containing drawings of large colourful flowers, and a border of the same diamond shapes, but smaller.

As he sits on a raised platform in front of his house, he shares his experiences of cultivating Responsible Soya. He has studied up to the eighth standard at school, and lives with his wife, Ram Lalli, and his sons Badri Prasad (25 years, married with 2 children), and Jeetendra Prasad (18 years, recently married). His daughter Raksha (23 years) and Vimlesh (21 years) are married.

He owns around 10 acres of land. This house is his ancestral house, and has 15-20 rooms.

In between the conversation, his son Badri Prasad takes charge, as he does most of the farming. "My father forgets most of the things. He even forgets where he keeps his things."

The family grows soyabean, urad dal, jowar, maize and wheat in its fields. Dayaram started growing soyabean around 15-16 years ago but stopped after four to five years, as the pods were not big enough, and the yield was marginal.

"The first year that the Responsible Soya team came to our village, and spoke about the different methods of sowing etc., I followed most of their advice, except the seed treatment. Unfortunately, the seeds got infected with the 'gutterbeater' bug, which ate the stems."

"Although in the first year of the programme, I planted the crop in 10 acres, I did line sowing only in two acres, and used the 'broadcast' method in the other 8 acres."

"I also did not make a vermi-compost pit, as suggested, did not get my soil tested. However, I did make the 5 leaf mixture for pest control, as there was no money to be spent on it."
“That year, the yield was 14 quintals from the two acres that I had done line sowing in, and 32 quintals from the rest of the 8 acres!”

“In the second year of the programme, I decided to do line sowing in all the 10 acres, but after I had finished sowing in 8 acres (with the help of a tractor bought 5 years ago), it started raining, so I had to stop.”

“This year, I managed to complete line sowing in all 10 acres. I also treated the seeds as taught, tested them by germinating around a 100 of them, prepared vermicompost pits, and got the soil from my fields tested. The report stated that there was a lack of potassium in them, so I bought potash and added it to them.”

With a smile, Dayaram and his son Badri Prasad share, “The result was a shining smooth yield! I got almost 9 quintals of produce per acre. I have sold 70 quintals at the rate of Rs. 2050 per quintal.”

Revealing his future plans, Badri Prasad, Dayaram’s elder son, shares, “I want to build a separate house, for which I have already purchased the land. We have taken a loan of Rs. 250,000 to marry my younger brother Jeetendra and sister Vinmlesh. I plan to return part of it.”

“We also need to buy fertiliser, and next season, I plan to grow soya on my entire land.”

**Case Study of Keshavdas Kushwaha**

Farmer and student Keshavdas Kushwaha, who has completed his high school, is almost 23 years old, but looks much younger than his age. He lost his father due to liver problems when he was just 13 years old. His brother Santosh had handled all family affairs then.

However, a couple of years ago, Santosh and his wife decided to live separately. Now Keshavdas lives in his house with his wife Pushpa, and his mother Ramkumari. He owns 5 acres of land, and plans to study for a Bachelor in Science (with Physics, Chemistry and Biology). When not farming, Keshavdas can be found giving tuitions to the younger children of the village.

He didn’t know much about farming, as he started it only a couple of years ago. That is why, it was fortunate for him to have the Responsible Soya team come to his village and teach new techniques of cultivating soya.

The first year that the programme was introduced in the village, the two brothers were still together, and Keshavdas remembers his brother had used the ‘tfunn’ (‘t’ meaning three and ‘funn’ meaning teeth; a three-pronged agricultural implement used to sow seeds, with the help of bulls).

“We sowed soya seeds in 2 acres of land, and followed everything that was taught to us, except preparing the vermi-compost.”

“The resulting yield was a good 20-25 quintals.”

From the second year of the programme, Keshavdas has been on his own. “I used seeds from the previous year’s produce, and some provided to me by the Responsible Soya team. I planted them in 2 acres of my land. The yield was around 18 to 20 quintals.”

“Soil testing of a sample from my fields revealed that it was deficient in Potassium. I also used a ‘T’ guard for pest control.”

“This year, I once again sowed soybean in 2 acres of my land. This time the rain was very heavy. When there was a little let up, I quickly applied fertiliser. There was too little time to spray weedicides. The yield was only 10 to 12 quintals, as there was no time to prepare organic pest control mixtures.”

The young man adds, “I have no loans outstanding against me, and I find enough time to farm as well as study.”

Refreshingly, he adds, “I think buying a television is a waste of time and money. So is a motorcycle. I will first convert my ‘temporary’ house to a ‘pucca’ (permanent) one.”

“I have been advised to plant chillies. In the next soybean season, I will sow it in 4 acres.”