



**PARIVARTAN**

A step towards progress

# Transforming Lives and Livelihoods

## Inspiring Stories

Supported by

**HDFC Bank Ltd. CSR**



The Project is implemented by  
**BAIF Institute for Sustainable Livelihoods and Development in India**  
November 2022



## PREFACE

We have the pleasure to present a collection of case stories from the HDFC Bank Parivartan project initiated with the support of HDFC Bank CSR.

This multi-state project is implemented at 16 locations in 11 states of India by BAIF Institute for Sustainable Livelihoods and Development. Eleven states include Andhra Pradesh, Bihar, Jharkhand, Karnataka, Maharashtra, Madhya Pradesh, Odisha, Rajasthan, Telangana, Uttar Pradesh, and Uttarakhand. The project covers more than 90,000 households from 14,998 villages spread over 95 districts. Amongst these 16 intervention locations, eight have a Focused Rural Development Programme (FRDP) as a broad theme, while seven have a Holistic Rural Development Programme (HRDP). These two themes include diverse and multiple focus areas such as livestock development, natural resource management (NRM), land-based livelihoods, quality of life, education, etc. The intervention locations have a combination of these diverse focus areas. With the commitment and generous support of the HDFC Bank toward creating sustainable rural livelihoods, the project will be implemented for a duration of three years or more than three years. The project duration provides space to bring in deeper and long-lasting changes.

Although these are early outcomes, the case stories give a glimpse into the process of transformation ushered in the lives and livelihoods of marginalised rural communities. These case stories showcase the capacities that are being built for efficiently managing the resources and the results and impacts that diverse livelihood-related intervention activities have started to create. They indicate the potential created through these interventions for replicating, growing, and offering solutions to the bottlenecks that rural communities face at present. The interventions are contributing towards improving the quality of life of the people and addressing livelihood needs.

We are thankful to HDFC Bank for providing support, much needed to sustainably empower underserved communities. We would also like to thank, all project participants, for sharing their inspiring stories, and for their openness and sincerity in learning and adopting new practices. Thanks are also due to our field staff who are working relentlessly to ensure last-mile reach. We wish them the best in their further journey.

Lalita Joshi  
Editor





# Bright marigolds bring happiness in Sita's life: A story of a tribal farmer in Jharkhand

## Introduction

**Sita Oraon** is a tribal woman of 42 years, residing in the **tribal village of Kundgarhi in the Lohardaga district of Jharkhand**. Lohardaga district is rich in mineral resources and is known for bauxite. A majority of villagers in Kundgarhi work as daily wage labourers in the mine, as there is no contract with the mining company. Per day per person wage rate is Rs. 250-300. The mine is 30 km from Kundgarhi and the contractor takes care of the daily transport of the labourers. However, the availability of work varies from month to month – in some months it is 5-10 days, while in others it is 15-20 days. Villagers working in the mine reported suffering from various respiratory diseases and eye problems given their direct exposure to air (dust) pollution.

Sita has a family of eight people, consisting of her husband, four daughters - aged 22, 18, 15, and 11 years and two sons aged 20 and 13 years. The average monthly earning from the mine is Rs. 6,000-7,000 when both of them, she and her husband, get the work. However, this meager earning is entirely spent on the food needs of the family as their daily expenditure on vegetables and ration is Rs. 100-200. Another source of earning for Sita is the land. Her family owns 1.5 acres of land and this land has an irrigation facility through the well. She cultivates seasonal vegetables on one acre of land and earns a monthly income of Rs. 3,000-4,000; which again is insufficient for her large family. Moreover, income earned through this is merely for the period of 5-6 months.

## Intervention

After becoming a beneficiary participant in floriculture farming, Sita utilised her 0.50 acres of land. Under this intervention, she received seedlings of 4,000 marigolds, 30 roses, 40 gladiolus, and fertilizer. She followed all the guidelines and advice given by agricultural experts in preparing the land, used a row system to transplant over 4,000 marigold seedlings in the month of July 2022, in watering the plants every three days, and in taking regular care.

**In March 2022, the HDFC Bank and BAIF Institute for Sustainable Livelihoods and Development (BISLD) began with the floriculture intervention in 18 villages of Jharkhand, with 50 participant farmers.** The physical training by Krishi Vigyan Kendra (KVK) was organized as well as experts at BAIF's Pune office conducted online training in floriculture

## Outcome

The dedication of Sita and her daughters is apparent as they could harvest 20 kgs of marigold flowers only 30 days after transplanting them. They sold their harvest at a nearby market for Rs. 50 per kilogram. Ranchi and Lohardaga are the main markets. Ranchi is 72 km, while Lohardaga is 8 km from her village. Mostly, she sells flowers at Lohardaga market. For selling the flowers, either she goes alone to the market or takes her daughters along. Recently, at the time of the Navratri, she managed to go to Ranchi



by train to sell flowers. As compared to the Lohardaga, the Ranchi market is bigger and fetches a better price. Marigold has a high commercial value as the beautiful blossoms are used in celebrations, festivals, and weddings. This cash crop is a boon to the farmers as the flower is easy to harvest.

With the floriculture intervention of the HDFC Bank, Sita now earns an additional income of Rs. 10,000-12,000 per month. The season for flowers lasts for 3-4 months in a year. With her new source of livelihood – marigold farming – Sita says, *“I am happy to do away with working in the mine. I am saving this money for my daughters’ marriage and for building a new house. I plan to expand flower cultivation on my remaining land”*.

Sita is an inspiration for other women in the village. Recently, two of her women neighbours have started to cultivate marigolds.

### **Conclusion**

Sita’s successful experience in floriculture has highlighted an important aspect, i.e. identification of new livelihood opportunity that has a reasonable scope for scalability. In this case story, good demand for flowers in the local market, specifically in Ranchi, was a forward market linkage that Sita could connect with and make use of, which proved to be beneficial for her.

**Written by:** Alok Kumar Sahu



Daughter of Sita Oraon in the farm



# Solar Streetlights: Illuminating villages in Munger district, Bihar

## Introduction

The absence of street lights is the key obstruction to the quality of life of villagers in the Munger district of Bihar. Electricity is barely available, that too merely at the household level. After sunset, there is always the fear of wild animals or of snakes and scorpion bites. In the past, many such accidents have caused loss of life. With no street lights, women suffer the most due to insecurity and mobility issues. People face difficulty in traveling after dusk given the interior location of the villages.

## Intervention

For the “**Holistic Rural Development Project (HRDP)** the **HDFC Bank and BAIF Institute for Sustainable Livelihoods and Development (BISLD)** have formed a partnership in Bihar. Under HRDP, 90 solar street lights were installed at nine villages in the Dharahra Block of the Munger district. To illuminate a village, 10 solar streetlights were installed in each village; spread across covering various parts. The total installation cost for 90 solar streetlights was approximately Rs. 16,20,000. The installation was completed in September 2022.

## Outcomes

The installation of solar streetlights has positively impacted the lives of the villagers. People are no longer scared of darkness. After sunset, they come out of their homes and gather near the streetlight, which was never the case earlier.

During power cuts in evening hours, the solar streetlights provide a source of quality illumination. Children use solar streetlights to study when electricity is not available. Women are confidently stepping out after dark. Mothers have started allowing children to go out and play after sunset.

Tetar Manjhi an old man from Atwalpur village said, “Now we can sit down on the ground at the night without much fear, whereas in the past we used to sit on a cot”.

Anita Devi, a villager of Lakarkola said, “In the past, all women were scared to step out of their homes after sunset, but now we step out without any fear”.

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Anita Devi, Lakarkola village

Anita Devi, a villager of Lakarkola said, “In the past, all women were scared to step out of their homes after sunset, but now we step out without any fear”. Mahesh Bind, a young man from Dashrathi village stated, “earlier we would be in bed by 8 pm, but now we sit near the street light and chat”.

Girls from the Gauraiya village beamed with joy and told that “earlier with no streetlights, they were not allowed to go outside the home after sunset. However, after the installation of the solar streetlight now they play as well”.

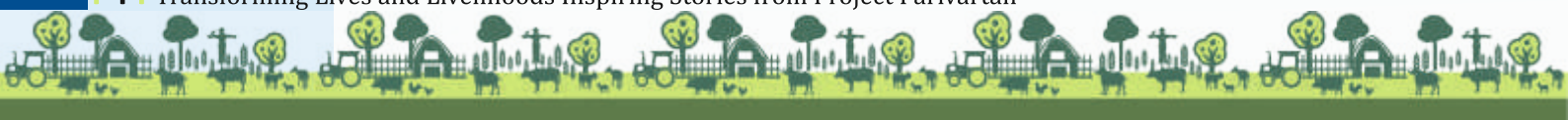
### **Conclusion**

One cannot miss the liveliness in the villages that solar streetlights have brought in. The frequency of informal social gatherings outside the premises of the houses has increased after the installation of solar streetlights. Ease in movement during dark hours and an improved sense of security among women and children is noticeable. Solar streetlights have provided the opportunity for children and women to interact. This intervention has demonstrated that solar streetlights have the power to improve the quality of life of people, specifically those living in remote villages.

**Photo Credits and Written by:** Ravi Raj



Amisha, Manti, Ankita,  
Kunti & Shanti,  
Gauraiya village





# The road towards improved livelihood through dairy and green fodder production

## Introduction

Sarala Devi is 48 years old farmer, an 8th-class passed farmer. She lives with her husband Vinod Kumar Yadav and has a joint family of 12 members. She and her family are from **Sikandarpur Aima village of Kaushambi district, Uttar Pradesh**, and their sources of livelihood are agriculture and livestock.

With the availability of the irrigation facility, the family cultivated paddy during Kharif and wheat during Rabi on the two acres of land they owned. With no surplus production, all the agricultural produce is consumed at home. They owned two crossbreed jersey cows and two female Sahiwal calves. However, with the small income that they earned from the dairy, the family struggled to manage. As the production of milk was less it impacted the income earned from it.

## Intervention

In December 2021, **HDFC Bank's Holistic Rural Development Programme (HRDP)** began in the Kaushambi district in partnership with BAIF Institute for Sustainable Livelihoods and Development (BISLD). With livelihood enhancement at its core, the HRDP has fodder and livestock development as one of the key interventions.



Initially, the farmers in Sikandarpur Aima were not interested in the livestock program. However, the establishment of the Cattle Development Centre (CDC) and its regular extension activities generated interest among the farmers. Sarala Devi is one of the twenty participant farmers from her village who got involved in the livestock programme. They were made aware of the need for green fodder cultivation and its effect on enhancing milk yield. They were trained in fodder cultivation as well as cattle development practices. Apart from receipt of fodder seed, the BAIF provided on-field technical guidance and support.

Under the HDFC bank project, one cow of Sarla Devi was inseminated in August 2022, while another was inseminated in September 2022. Now, both cows are pregnant.

## Outcomes

Prior to the HDFC Bank intervention, Sarla Devi and other farmers in her village did not cultivate fodder. To enable them to feed the cows daily with 15-20 kg of green fodder, the HRDP provided them with Bajra seed, Hybrid Napier (HN), and Berseem.

As a result of the HRDP intervention, Sarla Devi now grows fodder on one acre of her land in all three seasons so that her fodder requirements are met. She started to cultivate Bajra in Kharif, while HN and Berseem are grown in the remaining two seasons. Moreover, the guidance from the expert in BAIF has led her to follow the technique of line sowing which has contributed to



an increase in fodder production. Importantly, she observed better health of the livestock as well as increased milk production due to the feeding of green fodder.

It is well established that green fodder is an economic source of nutrients for dairy animals. It is highly palatable and digestible. Micro-organisms present in green fodder help in improving digestibility. It also helps in maintaining good health and improving the breeding efficiency of animals. Increased use of green fodder in the ration of animals reduces the cost of milk production.

The production of milk was 13 litres per day during the pre-intervention period, which almost doubled to 25 litres per day. Earlier, per day milk consumed at home was 3 litres, which now rose to 5 litres. The increase was noted in the everyday sale of milk from 10 litres to 20 litres. Per litre cost of milk is Rs. 30. The sale of the milk earns her Rs. 18,000 per month. The increased sale of the milk is reflected in the increased annual income from the milk from **Rs. 1,17,000 to Rs. 1,80,000.**



### Conclusion

Sarla Devi and other farmer participants in Sikandarpur Aima have created a successful model of cattle cultivation practice. The livestock-related intervention activities have contributed to improve dairy farming. It led to enhanced milk production and thereby income. This intervention shows immense potential to positively impact the quality of life of the poor villagers. This model has motivated not only other farmers in her village but also from neighbouring villages to follow the steps.

Sarla Devi plans to utilise the additional money earned through the dairy farming for her children's education and family needs. If anyone related to the BAIF-HDFC Bank project visits her house, she happily offers a glass of milk or a cup of tea.

**Photo Credits:** Abhishek Kumar Yadav

**Written by:** Maneesh Kumar Tiwari and Alok Kumar Srivastava



# A Wadi intervention in Odisha: A beginning towards improved livelihood, nutrition and environment

## Introduction

**Arnapurna** is 48 years farmer from the **Satsama village** of Charamal Gram Panchayat in Rairakhol block of **Sambalpur District Odisha**. The village is remotely located as it is on the border of the block and also the farthest from the block. She is a member of the SHG - Maa Subhadra and stays with her husband and four children. Agriculture and a small pan shop are two income sources for the family. They own 3.5 acres of land, out of which 2.5 acres of land is barren land, while on the remaining one acre of land they practice rainfed agriculture. The crop cultivated in Kharif is paddy, while in non-Kharif season few vegetables are cultivated. Most of the harvested produce is used for self-consumption, while 20-30% of the harvested paddy is sold, which earns them a negligible amount of Rs. 5,000. The average monthly income from the pan shop is Rs. 1,800. Her husband and children assist her in managing the shop. Arnapurna was unhappy about her inability to utilise the barren land and convert it into a productive resource, as she lacked both knowledge and money.



## Intervention

After the **HDFC Bank's 'Focused Rural Development Programme (FRDP)'** commenced in the month of **August 2022**, a meeting was held in her village to discuss the **Wadi model**<sup>1</sup>. In this meeting, the villagers were informed about the process of Wadi that facilitates the transformation of unproductive land into a productive asset. After attending the meeting, Arnapurna expressed interest to participate in the project and was keen to work on her barren land.

Under **Wadi** intervention, Arnapurna was provided with 25 mango saplings. Out of 2.5 acres of barren land, the plantation was done on a half-acre of the land. BAIF provided all the knowledge and technical support related to mango plantation. The pits were dug followed by pit filling and then planting provided mango saplings. The mango tree was chosen for the plantation as it is hardy and requires low maintenance among other fruit trees.

## Outcome

Arnapurna stated, *"I am thankful to BAIF for providing me with the opportunity to participate. I have received support at my doorstep. I am benefitting and learning from the inputs, technical support, and handholding provided for establishing the Wadi. I am happy that I am able to utilise my barren land for producing food as well as generating income. It's been just a few months since the project started and I look forward to learning more from BAIF"*.

Arnapurna, being an early adopter of the Wadi model in her village, has set up an example that will encourage others to follow.

**Photo Credit:** Akanshya Behera

**Written by:** Prakriti Rani

<sup>1</sup> Wadi is BAIF's successful model that promotes integrated 'agriculture-horticulture-forestry' based farming system for sustainable livelihoods through climate-smart practices. The model ensures multiple income streams round the year, specifically during the lean period through fruit trees. A cropping pattern include combination of medium gestation-high resilience and short gestation-high return crops and trees. Wadi not only strengthens livelihood of the household, but also increases food and nutritional security.

# A journey toward dreams, desires, and design through Wadi in Rajasthan.....

## Introduction

With the advent of the project activities, which include Agri-Horti-Forestry plantation (Wadi model) for land development and income enhancement, over 1,375 farmers are envisioned to be directly impacted by it. Here we present an interview excerpt to fathom the perceptions and understand the expectations of farmer to participate in this project.

**Balal Pargi** is a **marginal tribal farmer** from the **Dhamni village** of **Jhadol block, Udaipur district, Rajasthan**. He had gotten married quite young, consequent to which he had to take up the duty of being the family's sole breadwinner. He struggled a lot, as the resources of his land were limited, and water resources were underdeveloped with only one pond in his entire village that was used as a source of drinking water. Most of the year he travelled to nearby villages and cities to work as a daily wage labourer.

The **HDFC bank and BAIF's 'Focused Rural Development Project (FRDP)'** aims at strengthening tribal farmers to be climate resilient and survive with dignity. It aims at securing the lives and livelihoods of the most vulnerable tribal farmers of rural Rajasthan and uplifting their quality of life.

The **HDFC Bank funded project implemented by BAIF Institute for Sustainable Livelihoods and Development (BISLD)** was rolled out in 2022 in Jhadol block of Udaipur district, Rajasthan, when participants were urged to join the developmental project to elevate their livelihoods through Wadi-based Development systems.

Perhaps for a tribal Rajasthani farmer, the ambition for quality life and desire for identity was a mere dream, getting lost in the war imposed on them due to recurrent droughts, gruesome summers, absence of diversified livelihoods, lack of productive land, limited water resources, and unpredictability of labour work opportunity after the Covid-19 pandemic years.

We all are experiencing these effects as a part of a global phenomenon and at the heart of it remain the vulnerable and marginalized sections of society, still fighting for survival.

## Intervention

After participating in an exposure visit conducted to know the role of project activities in generating sustainable livelihood and also after attending the meetings held for assessing participants' needs and suggestions to increase the impact of the project, Balal decided to participate in the HDFC Bank project. He saw a good match between his expectations and the objectives of the project and thus hoped to build a good life for his two sons.

With excitement in his voice and a spark in his eyes, Balal said *"these little saplings will once grow into mighty trees. They'll give us fruits, they will bind the soil, hold water, and will give us shade". Our families will be deeply benefited from the produce of the Wadis. Our children will consume some of the Amla (Indian gooseberry) fruits (it has vitamin C), while we will sell some in the markets". If we take good care of our teak (forestry) plantations, it can serve as a major security provision for our families' future in terms of urgent money requirements."* Balal further adds *"let's not forget how this project can help sustain our*



*environmental conditions. It will help this landscape receive more rainfall, which won't just have a positive effect on the project plantation but also our regular farming systems”.*

In development science, any project should have a well-formed security net, so that empowering and strengthening activities can elevate not only income, but security net can ensure that people don't fall back into vicious poverty traps.



**In conversation with Mr. Balal Pargi.**

### **Future Outcome**

When asked about what he thinks of the impact this project will generate on his quality of life, Balal stated *“Just like we nurture our kids, we will nurture this land with the resources provided through this project. Similar to a lot of expectations from our kids, we have the same from this project. When our children grow up and do well in their lives, we feel happy, just in the same way, we will also feel happy when our plants will get their first fruits”.* His honest reply and deep understanding of sustainability resonated with the impacts the project is intended at.

**Written and Prepared by:** Ms Christi Kesh and Ravindra Kumawat



# Dairy farming: A path towards promising future for marginal farmers in Telangana

## Introduction

**K Sataiah** is 45 years old farmer from Thondapalle village. The population of Thondapalle is about 1,200; consisting of 352 households. The village comes under **Parigi Mandal of Vikarabad District, Telangana**. The majority of the village population travel to Hyderabad to work as daily wage labourers while the remaining people rely on agriculture and dairy as their sources of livelihood.

Sataiah stays with his wife and two daughters. His daughters study in class 8th and class 9th class in the local government school. His family is from the underprivileged section of society as it belongs to the scheduled caste (SC), falls in the

below poverty line (BPL) category, and holds marginal land. On his one acre of land, Sataiah practiced rainfed farming and cultivated maize and cotton during Kharif earning him Rs. 30,000 annually. He was solely dependent on agriculture.

It is been increasingly difficult for Sataiah to make ends meet, with these meager earnings on one hand and inflation on the other. Even though he was desperately searching for an additional livelihood source, he did not wish to migrate as a wage labourer to other cities. His search for additional livelihood ended with dairy farming. In February 2022, he bought a Holstein-Friesian (HF) cow, which yielded 14 litres of milk per day enabling him to meet his family's nutritional requirements as well as to sell surplus milk earning him an average of Rs. 400 per day. The regular flow of income, which his single cow ensured, boosted Sataiah's confidence and he began looking for avenues to increase the number of cows. As he approached private agencies for insemination services, he found their rates to be exorbitant and unaffordable. The private agencies charged Rs. 200-Rs. 250 for conventional semen, while for sorted semen the rate was Rs. 1,000.

## Intervention

As the artificial insemination services that private agencies offered were unaffordable, Sataiah was relieved when he came to know about the Cattle Development Centre (CDC) run by BAIF in the nearby village. The CDC offered the sorted semen services at a subsidized cost under the **HDFC bank-sponsored 'Focused Rural Development Project (FRDP)'**. The FRDP enabled Sataiah to access sorted semen service from BAIF in April 2022 at the cost of Rs. 200, whereas the private service provider offered it at



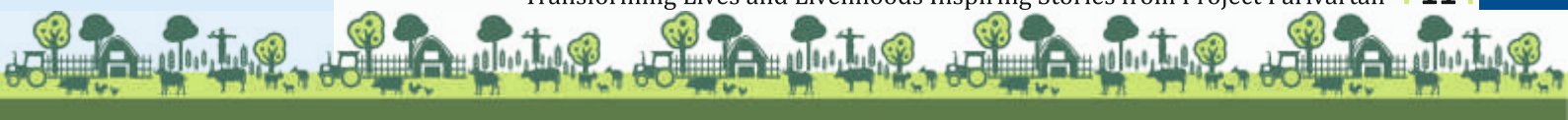
Rs. 1,000. Apart from providing AI service at the cost of Rs. 200, a mineral mixture worth Rs. 200, was provided free of cost.

### **Conclusion**

The outcomes of this intervention are yet to emerge as the cow is pregnant. However, the increase in the confidence level of the Sataiah is evident. Importantly, poor and marginal farmers like Sataiah are now able to access the advanced technology of sorted semen because of the HDFC Bank's FRDP.

*Sataiah says, "I am glad to receive the sorted Artificial Insemination (AI) service for my cattle at such a low cost. I received a mineral mixture too at the same cost. Moreover, I am so happy that my cow has conceived. I am thankful to HDFC bank and BAIF for making the service affordable and available at my doorstep. Now I believe, I can purchase 2-3 more cows in the coming days to become a full-time dairy farmer and enhance my income. The HDFC bank-BAIF intervention is extremely valuable for remote villages like ours, where farmers like me have minimal resources and opportunities to uplift our economic status".*

**Written by:** Hemanth Rao



# Solar-based insect trap, a step towards chemical-free farming

## Introduction

Like many other farmers, **Shivaputrappa Kumbar** of Hunasihal village of Koppal district, Karnataka used chemical pesticides to tackle the pest menace. It not only deteriorated the quality of the soil of his land but also cost Rs. 5,200 per crop. The introduction of a solar-based insect trap under the “**Holistic Rural Development Project**” (HRDP) implemented by BAIF Institute for Sustainable Livelihoods and Development (BISLD) with the support of HDFC Bank helped him find a viable alternative to chemical pesticides. He is now spending much less and there is no further degradation of his land.



## Intervention

The HDFC bank project started in 2021-22 has supported 178 farmers to install the solar insect trap. This intervention covered 10 villages in Yelburga taluk of Koppal district. The main feature of the project is the introduction of Solar Insect Traps. Each trap costing Rs. 5,400 was fully subsidised. Shivaputrappa came forward to install the solar insect trap. The basic purpose of the intervention is to improve the livelihood of poor farmers by minimising the usage of chemical pesticides thereby reducing the expenditure incurred on it. It is also aimed at protecting human and ecosystem health.

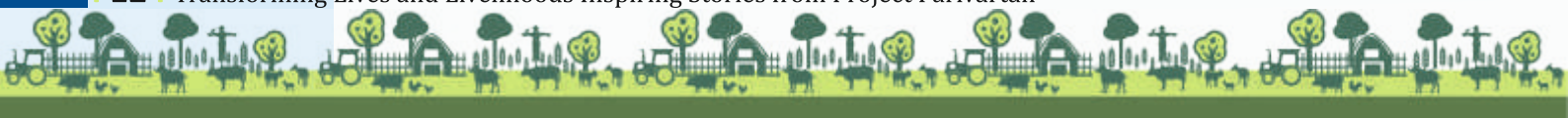
## Installation and usage of the Solar Insect Trap

After receiving the solar insect trap, he installed it in the plots in which he cultivated vegetables. On his four acres of land, in the Kharif season, he cultivated chili, cauliflower, and tomato; while in Rabi tomato and cabbage were cultivated. BAIF provided support in installing the solar insect trap and provided information on how the device functions. It was emphasised that everyday cleaning of the bowl is a must to avoid the foul odor caused due to the decay of the pest.

## Outcomes

Shivaputrappa was astonished to see hundreds of pests falling into the bowl. He regularly cleaned the bowl and replaced it with fresh water. He buried the dead pests in a pit.

He also noted the stark change in





the vegetables, in terms of their healthy growth, specifically in comparison to when he used to spray chemical-based pesticides.

Importantly, with the lowered pest attack, he could gradually reduce the application of chemical pesticides by almost 50%. For each crop, he saved Rs. 4,000 towards pesticides cost. Reduced usage of chemical pesticides also saved his time spent in searching for the labour needed for spraying and Rs. 1,200 towards labour charges for each crop. For five vegetables cultivated in Kharif and Rabi seasons, in total he saved Rs. 26,000.

Although Shivaputrappa has not reported it, but lessened usage of chemical pesticides will lead to the ecosystem protection through reduced contamination of soil, water, vegetation, and other organisms. Similarly, decreased use of chemical pesticides have reduced the direct exposure of farmers to it and would further reduce residues in the produced food.

### Conclusion

The initiative of Shivaputrappa to use simple but effective solar-based insect trap has proven to be beneficial for farmers. It reduced the usage of chemical-based pesticides that is harmful in terms of both soil fertility and financial expenditure. Seeing the success of farmers like him, more and more farmers are willing to adopt this new device. Also, with the market price of the solar insect trap reducing considerably, it would be easier for poor farmers to buy this without any outside financial aid.

*“It has enabled me to reduce the expenditure incurred on chemical pesticides and labour. Besides, the solar-based insect trap is a step towards chemical-free farming. I am grateful to the HDFC bank for providing the solar insect trap and its usage” – Shivaputrappa stated.*

### What is Solar Insect Trap?

The solar insect trap is not only economical but contributes to identify the pest and insects pattern further aiding in developing pest control plan.

#### Portable, easy to install and operate

It consists of solar Panel, battery, LED bulb, and plastic bowl, all mounted on a stand. It comes with the timer, which automatically turns on at the sunset and turns off after 4 hours of continuous operation. During day time, solar panel absorbs the sunlight and convert it into electric energy. Then the battery store the energy generated from the sunlight. As the dusk sets-in the light automatically switches on. Neither manpower nor electricity is required to operate the device.

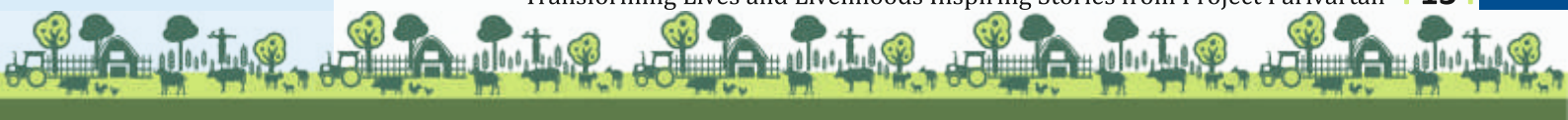
Trap is designed in such a way that the time of adult pest emergence is synchronized with the time of LED bulb switching on. Due to photo tropic effect pests fly (adults) attract towards the light source. The moment flying pest hit the screens of the light, it drops into the pest basin and gets drowned. Flying Nymphs and Adult insects like leaf folder, stem borer moths, fruit borer moths, hoppers, fruit weevil and beetles etc., get trapped thereby reduce adult population and subsequent progenies in the fields.

#### An ecofriendly device protecting human health

It is ecofriendly on two counts. It helps to distinguish and control pest damaging crop, whereas it enables pollination to improve the productivity. It can be widely used in agriculture, horticulture, organic farm, forestry, vegetable cultivation, and homestead

**Photo Credits :** Sunitha Kusugal

**Written by:** Ganga Ankad & Sunitha Kusugal



# Sprinkler irrigation, a boon for farmers in semi-arid parts of Karnataka

## Introduction

**Siddappa Marnal** a 45-year-old resident of Muradi village says “Sprinkler is a boon for farmers like me who have a limited water source. Sprinkler irrigation ensures better yield and hence higher income”.

Yelaburga taluk of Koppal District, Karnataka experiences a semi-arid type climate characterised by hot summer and

low rainfall. Siddappa lives in a joint family of 20 members. His family owns three acres of land and they have a flour mill, chili pounding machine, and vermicelli machine. He cultivates maize and pigeon pea in Kharif and jowar and watermelon seeds in Rabi. He has one bore well on his land, which yields 2-inch water. He used flood irrigation for watering crops. However, water was highly insufficient to irrigate crops. Moreover, per day availability of electricity was limited to seven hours. In order to complete one irrigation cycle it took 8 days. Thus, inadequate availability of water and electricity adversely affected the yield.



## Intervention

After receiving the **sprinkler set** in **January 2022** under the **HDFC Bank-sponsored “Holistic Rural Development Project” (HRDP) project implemented** by BAIF Institute for Sustainable Livelihoods and Development (BISLD), Siddappa used it to irrigate jowar and watermelon seeds. The total cost of the sprinkler was Rs. 25,000, in which Siddappa’s contribution was Rs. 2,500; while the HDFC bank provided support of Rs. 22,500.



## Outcome

The usage of sprinklers for irrigating crops has immensely contributed to the cautious and judicious use of water, an extremely scarce resource for Siddappa.

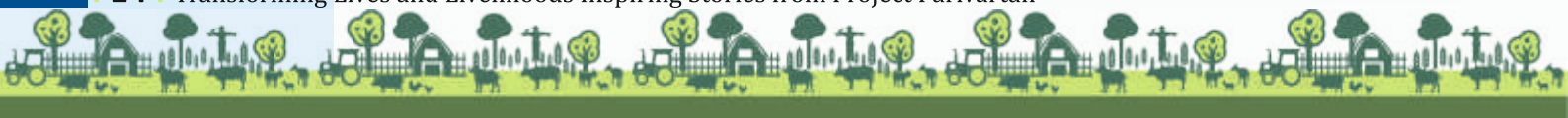
Prior to the use of sprinkler irrigation, the production of jowar was three quintals, however, after using the sprinkler a substantial rise to 4.5 quintals is seen in the harvested yield. Similarly, the yield of watermelon seeds increased from 22 kg to 25 kg in a half an acre area. From both crops, Siddappa earned an additional income of Rs. 10,500.

## Conclusion

Siddappa’s story demonstrates that a small technological intervention like a sprinkler set can substantially contribute to the efficient use of water and thereby increased crop yield. The judicious use of water is specifically critical in the context of semi-arid areas, where the availability of water is inadequate.

**Photo Credits:** Sunitha Kusugal

**Written by:** Ganga Ankad & Sunitha Kusugal



# A path towards prosperity through the IISR Pragati variety (turmeric) in Hingoli

## Introduction

**Zanak Kachru Manmothe** is 58 years old marginal farmer from the village **Kendra Khurd** in Sengaon block, **Hingoli district**, Maharashtra. He owns three acres of land on which he cultivated mixed crops, soybean and pigeon peas. The yield of soybean was around 3 quintals (300 kg) from which he earned around Rs. 15,000, while the yield of pigeon pea was 70 kg earning him Rs. 5,000. Zanak has three sons, but two of them now live separately and he and his wife live with their third son. He recently suffered from a heart attack and had to spend a lot of money to pay for the medical bills. He was informed that he will have to undergo a bypass surgery to clear blockages that might be impeding his recovery. Fortunately, he underwent bypass surgery in Shirdi without paying any cost for it. Prior to his illness, his income from the land was around Rs. 20,000.

Zanak Manmothe informed that to support the family, his wife and son worked as farm labourers. Besides, they had to lease out their farm for two years, which was set at Rs. 25,000 per year. In March 2021 under the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), they received the sanction to dig a well on their farm. After completion of the work in April 2021, he obtained a diesel pump on rent to irrigate the fields.

## Intervention

Around this time, through **the HDFC bank's 'Holistic Rural Development Project' (HRDP)**, BAIF Institute for Sustainable Livelihoods and Development (BISLD) began working in Kendra Khurd. One of the interventions in the project was of Pragati turmeric seed variety. This is a six-month duration variety that enables farmers to cultivate it in both Kharif and Rabi seasons.

The village development committee approved the application of Zanak made for obtaining the Pragati turmeric seeds. After receiving turmeric seeds from BAIF in May 2021, he sowed them in his fields in the first week of June. Although he had access to water, he borrowed a diesel pump to ensure irrigation towards the end of the monsoon season. He applied bio-fertilizers and bio-pesticides as per the guidance and directions provided by the technical person in BAIF. The technical expert visited his plot and explained to him the method as well as the ratio of different fertilisers to be used during the application. After sowing, the soil was treated with micronutrients, such as Trichoderma, NPK, Microla, and phosphoric acid. These micronutrients were applied between the seeds so that they can reach directly at the roots and spread evenly in the crop area. After two months, the crops were given the first dose of fertilisers which included NPK-50 kg, Urea-25 kg, Magnesium Sulphate-5 kg, Sulphur-5 kg, Granules-2 kg, and Sagarika-10 kg which are beneficial for the plants and are the minimum requirements with which any pests or diseases can be kept at bay. The second dose of fertilisers was repeated with the same



types and quantity of fertilisers. The third and last dose of fertilisers consisted of Ammonium Phosphate-50 kg, Ferrous Sulphate-5 kg, Potassium Nitrate, and NPK.

### Outcome

The fertilisers which were given to the crops have reduced the pest attacks in Zanak's plot and the rhizomes have not degraded due to any pests.



At the end of six months, the cultivation of wet turmeric in Zanak's field weighed 56 quintals or 5,600 kg as seen in Table 1. After processing, the yield of the dry quintal was around 7.5 quintals or 750 kg.

The rate he received after selling the Pragati rhizome in the market was Rs. 6,600. He sold his turmeric in Risod town for around Rs. 49,500.

Table 1: crop yield & income earned

Sr. No.	Crops	Total yield (quintal)	Production of polished fingers (halkund)	Rate per quintal	Gross income	Cost of cultivation	Net income
1	Turmeric Demo plot	56	7.5	6600	49,500	37,400	12,100
2	Wheat in Rabi	3.5	0	2000	7000	4200	2800

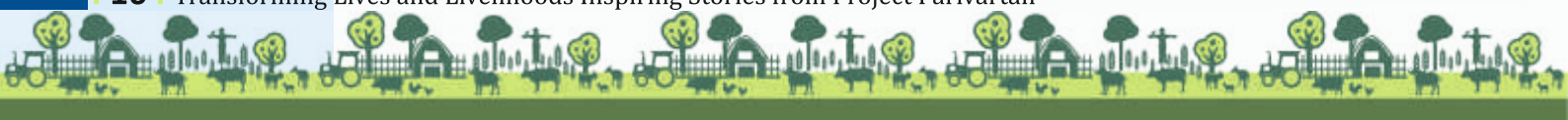
In the Rabi season for the same year, he cultivated around 3.5 quintals or Rs. 7,000 of wheat in the half acre of land. He is going to use it for self-consumption.

Zanak has decided to continue with the package of practices (PoPs) that he learned from BAIF when he sowed turmeric for the first time. He tells us, "my experience with the cultivation of turmeric (a new crop for me), with the handholding support that BAIF provided in the entire process, has made me confident to continue cultivating turmeric in the future. This year I have increased the area of turmeric cultivation to one acre of land. I am optimistic about improving my yield over a period. I have bought a second-hand diesel pump as well as a sprinkler set for irrigating crops. I have also purchased small drip irrigation set to provide fertilisers for turmeric. I am also cultivating marigold flowers in 3 guntha of land, as well as soybean and pigeon pea in 1.75 acres."

### Conclusion

The knowledge and practiced learned through the HDFC Bank-BAIF Institute for Sustainable Livelihoods and Development (BISLD) project intervention has built the capacities of Zanak. He has found a path towards prosperity through the HDFC Bank project intervention, which promoted cultivation of turmeric, a commercial crop.

**Written by:** Sanil Chapalgaonkar



# Women's SHG in Hingoli embarks on a vermicompost enterprise

## Introduction

**Jai Jijau Self-Help Group (SHG)** is a group of 10 women from Waghjali village in Sengaon block, Hingoli district, Maharashtra. All women SHG members belong to marginal farmer families. The SHG was formed in October 2019 with the aim of fostering collective spirit and increasing the participation of women in the public sphere. Women started making a minimum monthly saving of Rs. 100 with the hope that it will enable them to diversify their income sources in the future.

## Intervention

As all the SHG members are farmers, they possessed the know-how and understood the nitty-gritty of working on farmland and different income-generating sources associated with farming. Under **“Holistic Rural Development Project” (HRDP)** sponsored by the HDFC Bank, BAIF Institute for Sustainable Livelihoods and Development (BISLD) organised a meeting with the Jai Jijau SHG members to discuss the potential businesses that could be initiated under the COVID-19 activity support. Further, a brief assessment helped to determine the interest of the group, which came up to be the micro-enterprise of vermicomposting. The meetings followed for making the roadmap for setting up the Vermicompost unit.

The HDFC Bank provided support of Rs. one lakh for constructing the Vermicompost unit, while the monetary contribution from Jai Jijau SHG was Rs. 20,000. BAIF staff and agriculture officers of the taluka (block) Agriculture Department guided the SHG about the different aspects required for developing Vermicompost pits. The pits were dug and the shed was constructed in the months of March and April 2022, while the unit became functional in May 2022.

In order to oversee the functioning of the Vermicompost unit, the SHG members work on a rotational basis. Every day each of the SHG members is present at the unit for at least half an hour.

## Outcome

In the months of August 2022 and September 2022, the Jai Jijau SHG earned Rs. 3,600 and Rs. 8,400 respectively, from their newly established Vermicompost enterprise. As Vermicompost enterprise has started generating income, women SHG members are enthused to expand their outreach and thereby their income.



**Written by:** Sanil Chapalgaonkar

# Dairy husbandry project of BAIF-HDFC Bank in Osmanabad district, Maharashtra

## The Context

Agriculture the mainstay of the Indian economy predominantly relies on unreliable and uneven monsoon showers. With scanty rainfall sans irrigation facilities, rain-fed agriculture is practiced in the Osmanabad district of the Marathwada region of Maharashtra, which results in low crop productivity as well as low agricultural income.

Dairy farming is a supplementary livelihood activity in the district and acts as a safety net since it provides regular income throughout the year to the farmers. Moreover, dairy farming is gaining significance, given the increased demand for milk and thereby increased share of income earned from it. Growing demand is not only for milk but also for the milk products like *Khowa* or *mawa* and *Peda*. One kilo of *Khowa* fetches Rs. 250.

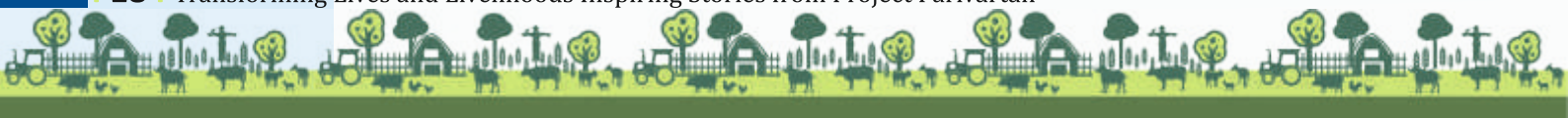
The problem with the traditional method of dairy farming has been uncertainty about the birth of a female calf, as it slows down or impacts the expansion of business. Moreover, the birth of male calves puts an economic burden on dairy farmers as it is expensive to rear them.

## Intervention

Since **March 2021, BAIF Institute for Sustainable Livelihoods and Development (BISLD) in association with the HDFC bank is working in 233 villages of Osmanabad, Bhum, Paranda, and Kalamb blocks of Osmanabad district through the dairy husbandry project.**

The objective of the project is to enhance the productivity of dairy animals, thereby increasing the income from dairy farming. Various activities implemented for realising the objective include:

- (a) Doorstep cattle breeding service with sex-sorted semen,
- (b) Supply of quality seeds and planting material for the promotion of fodder cultivation,
- (c) Organization of camps for treating infertile cattle,
- (d) Training in improved dairy cattle management and exposure visits to learn from progressive dairy farmers. Now, we present 3 caselets from the Osmanabad district, Maharashtra.



# Sex-sorted semen: A ladder to prosperity in dairy husbandry

## Introduction

**Kumar Ghule (32)**, one of the participants of the **HDFC Bank - BAIF project**, is a 12th class passed young farmer from the **village Hiwra in Bhum block of Osmanabad district**. He lives in a joint family comprising eight members and they possess 10 acres of land. Kumar is an enthusiastic dairy farmer open to experimenting for increasing the productivity of cattle. He got associated with the HDFC Bank and BAIF's project during a training programme organized in 2021 by the Cattle Development Centre (CDC) established by BAIF at Hadongri. In this training, he became aware of various services provided by the CDC and the availability of sex-sorted semen for breeding that assures a higher chance of the birth of female calves.

## Intervention

In 2018, Kumar used the services of a private AIT (artificial insemination technician) for the sex-sorted semen. He had paid a high cost of Rs. 1,800 per sex-sorted semen AI. However, in 2021 the HDFC Bank-BAIF Institute for Sustainable Livelihoods and Development (BISLD) project facilitated to provide the sex-sorted semen artificial insemination (AI) at a subsidised cost. Under this project, a package of Rs. 450 was offered, which was inclusive of (a) insemination of sex-sorted semen, and (b) a packet of 1 kg mineral mixture, worth Rs. 150.

## Output

Kumar took benefit of the HDFC Bank project to expand his herd. After the insemination of four cows, four female calves are born in 2022.

It is important to note that in the case of Kumar, not a single cow conceived with sex-sorted semen gave birth to a male calf implying a 100% success rate. The affordable service of quality sex-sorted semen provided at the doorstep has helped Kumar to expand his dairy cattle.

Other than the birth of four female calves, Kumar received knowledge, practice, and skills imparting support for improving the productivity of cattle, which have contributed to making his enterprise remunerative. Some of the benefits he received include: (a) the plantation of BHN-11 green fodder (b) the balanced diet in the form of silage and mineral mixture (c) best management practices for clean milk production (e.g. loose housing system) that help in keeping the animal healthy and free from diseases like mastitis and proper monitoring of individual animal to get the best quality milk without compromising with animal's productivity.

Word of mouth has generated interest in and is creating demand for sex-sorted semen intervention. Kumar had become known in his village and the neighbouring villages and has become a source of motivation for other villagers. A steady flow of visitors has started at Kumar's dairy farm. So far more than 40 farmers in the neighbouring area have visited. Farmers like Anil Dhabre from Dudhgaon have adopted some of the best practices like loose housing system and silage making after visiting Kumar's farm.

## Conclusion

The poor farmers of the Osmanabad district are now able to access, the otherwise expensive service of sex-sorted semen AI at their doorstep, thanks to the subsidised cost offered in the HDFC bank project. The HDFC bank and BAIF's project is gradually empowering villagers to create valuable assets and thereby an alternative viable livelihood



Kumar advocates the practice of using sex-sorted semen for the rapid expansion of dairy husbandry.



# Sex-sorted semen technology kindles hope in a frustrated dairy farmer

## Introduction

**Mahesh Kawle** is a small farmer from the village of Kawlewadi in the Osmanabad block of the Osmanabad district. He is one of the participants in the **HDFC bank-BAIF Institute for Sustainable Livelihoods and Development (BISLD) project** that began in March 2021. His village is served by Cattle Development Centre (CDC), Govardhanwadi. Mahesh being an inquisitive farmer by nature got interested in the sex-sorted technology that assures the birth of female calves.



In March 2021, Mahesh was rearing three crossbred cows, amongst which two were Holstein Friesian (HF) and one of Jersey descent. Each of the two HFs gave a daily milk yield of 18-20 litres. Jersey was of the second lactation and yielded about 14 litres of milk per day. Since the cow was a high yielder Mahesh decided to use her as the foundation and build a highly productive herd. However, as fate would have it, from the first delivery to the next four successive deliveries the cow did not produce a single female calf. The cost of rearing a male calf is 8,000. Moreover, prior to selling the calf after it completes three months, about 2-3 litres of milk is required to be fed every day. Frustrated Mahesh thought about selling the cow, but could not dare as the cow was highly productive and an exceptional animal.

## Intervention

The HDFC bank project has subsidized the cost of sex-sorted semen at Rs. 450 per artificial insemination (AI). In addition, one kg of the quality mineral mixture is provided free of cost. During the cattle infertility camp organized by the HDFC Bank and BAIF, Mahesh learned about the project and the sex-sorted semen technology offered at an affordable cost.

Enthused with the high possibility of the birth of female calves through sex-sorted artificial insemination (AI), Mahesh decided to go for it. In October 2021, he got Jersey crossbred inseminated with sex-sorted semen of a crossbred pedigreed Jersey bull with 75% exotic inheritance and 5,953 kg lactational yield of the dame.

## Output

Mahesh's hope and expectation was fulfilled when a female calf was born in 2022.

Mahesh was overjoyed and expressed gratitude toward the project for bringing the latest technology to the doorstep of the farmers. He is never tired of sharing his experience. He advocates the adoption of technology. Mahesh says *"heifer calves with high pedigree guarantee a bright future"*.

## Conclusion

The number of enlightened farmers like Mahesh is growing steadily thanks to the HDFC Bank project initiative, signalling 'Acche Din' (good days) for the dairy farming enterprise and prosperity in the area.





# Infertility Camp: A boon to dairy farmers

## Introduction

**Prashant Patil** is a small farmer from village Rui in Osmanabad district of Maharashtra. He owns five acres of land and his family comprises nine members. In order to supplement the meagre income earned from rainfed farming, he works as farm labour as well as is engaged in dairy farming.

Since 2014, Prashant has gradually increased the herd size from one cow to eight cows, wherein he focused on ensuring the 'birth of a calf' every year. To ensure the availability of nutritious fodder throughout the year he cultivates it. However, over the years, he sold the cows to reduce the strength to five and focused on selling pregnant heifers (young cows that have not yet given birth to a calf), rather than selling milk.

Prashant was worried as his crossbred cow faced the reproduction-related problem called 'repeat breeding'. In this, a cow that is cycling normally, with no clinical abnormalities fails to conceive at least two successive inseminations. Frustrated with this problem Prashant toyed with the idea of selling off the cow to avoid economic loss.

## Intervention

As a last resort Prashant brought the cow to the infertility camp that BAIF Institute for Sustainable Livelihoods and Development (BISLD) organised at the CDC, Tugaon. Experts from BAIF at the camp diagnosed the cause and prescribed the treatment schedule. After completion of the treatment schedule, the cow was successfully bred in the subsequent breeding cycle and gave birth to a male calf in May 2022.

Prashant is happy with the services offered at the CDC, as the villagers like him in the surrounding area are assured of the timely and much needed service.

## Conclusion

Alike Prashant, other dairy farmers in his area are satisfied about the successful treatment of infertile animals in the cattle camps. Cattle infertility camps are proving to be the boon for the dairy farmers.

**Written by:** Dr. Krishna Jadhav and Mr. Sudhakar Bagal

**Prepared by:** Ms. Ashlesha Deo

Infertile cows are a drag on the dairy enterprise since they cause a substantial financial loss. Cattle Development Centre (CDC) at Tugaon is functioning under the HDFC bank project. In the current year 2022, 73 Infertility Camps were organized, in which 1,680 cattle were treated free of cost. Out of the treated cattle, so far 1,200 have conceived.





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