ODISHA
MILLETS MISSION

WFP
World Food Programme

Millet Journey of Odisha Millet Mission

CASE STORIES FROM THE FIELD

Contents

OVERVIEW

Despite substantial improvement in health and well-being since independence, malnutrition remains a silent emergency in India. The vulnerability of agriculture to climate change further compounds the risk of malnutrition. Being a nutritious and climate-resilient crop, millets are an excellent solution for the current agricultural and nutritional crisis in the country. Odisha Millet Mission (OMM) is a flagship program of the Government of Odisha launched in 2017 with an objective to improve nutrition at the household level through the revival of millets in farms and on plates of tribal communities in Odisha. OMM became a game-changer in the State because of its comprehensive program design for millet promotion, among indigenous communities, women farmers, and small and marginal farmers. Over three years of operations, it has already shown substantial progress in improving the production and consumption of millets.

Odisha millet mission is a unique and successful model in taking millets to the millions making it important to document the learnings, best practices, field stories and experiences for other States to learn from the experience and design similar programmes. For this, IPE Global Limited in consultation with World Food Programme (WFP) developed case studies. A qualitative research design was used, and data collection was undertaken from stakeholders at the national, state, district and field level using tools such as Focus Group Discussions (FGDs), Key Informant Interviews (KIIs), and In-Depth Interviews (IDIs). Districts were sampled purposively and the most interesting stories from the community were selected for in-depth interviews to understand how OMM changed their lives.

The case studies given in this document will give a holistic understanding of how OMM has managed to make an impact on the millet value chain in Odisha leading to an increase in its demand and supply. It will discuss real life experiences around how successfully OMM strengthened millet production, value chain, distribution and consumption, keeping a gender-inclusive environment throughout the program cycle while also focussing on climate resilience. It will also give the reader a clear picture of the community's perspective around OMM and inspire people and communities to adopt similar practices.

THEMATIC AREA 1

MILLET PRODUCTION

How OMM changed **Badal Sahoo's** fortune

Background

Badal Sahoo (29) joined SG Foundation in 2019 as a Community Resource Person under OMM. Due to a financial crisis in his family, he had to discontinue his education after completing his schooling. After working in an iron company for a few years, he returned to his native village, *Barakhandia*, and started a poultry farm. He also started to work on his dream of graduating from college. He however could not cover the cost of further education with poultry farming alone and joined as a CRP. As a part of his duty, he has been assigned 3 Gram Panchayats - *Khuntapada* (6 villages), Chauthia (5 villages) and *Gunduria* (3 villages). He mobilizes farmers and shares knowledge and best practices related to millet cultivation.

Intervention Details

As per SG Foundation's guiding principles, all CRPs themselves have to undertake millet cultivation in at least 1 acre of land. Accordingly, in 2020, Badal along with his mother and son started millet cultivation in their 1 acre plot following SMI agronomy practices. They invested approximately Rs.17000/-[1] and produced 10.00 quintal of *mandia* in the first year. They sold 9.40 quintal @ Rs.32.95 at the Mandi and got Rs.30,973/- along with an incentive of Rs.2000/-.

[1] Ploughing: Rs.4200/-, Seeds: Free, Compost: Rs. 1500/-, Poultry manure: Own, Labour: Rs. 7000/-, Weeding: Rs. 1600/-, Harvesting: Rs.2000/- Bio inputs: No cost

As a result of cultivating *mandia* himself, he has learnt several agronomic practices, which he teaches other farmers as a CRP. He only uses bio-inputs for millet production and encourages other farmers to do the same. He uses his story to encourage others to start cultivating *mandia* at least in their fallow lands.

Impact

In *Barakhandia* village, most farmers would usually give their land for share cropping and very few farmers would undertake paddy cultivation. Therefore, farmers had limited skills and confidence to undertake millet production. Barring a few SHGs members, no other farmer showed any interest to undertake millet cultivation. However, Badal's story and effort helped mobilize 25 farmers who started millet cultivation in 25 acres of land. As millet cultivation grew, so did the demand for bio-inputs. Badal and his mother started preparing bio inputs like *Handi Khata* and *Jeevamruta* for the entire village to use. Badal is very grateful to OMM for supporting him in this new venture, which mobilized the community to cultivate millets, increased his household income, and assisted him to complete his education.

Enabling women's economic empowerment:

Bio-input Unit

in Jashipur

Background

The Green Revolution in India helped India achieve food security however it also led to increases in use of chemical fertilizers and pesticides leading to poor quality of soil. Additionally, the last few decades have witnessed severe effects of climate change with rising temperatures and scanty rainfall. These two factors have severely impacted agriculture in India. Millets, which have traditionally occupied a significant place in the diets and crop systems in tribal areas of Odisha, can grow with very low water footprint (around 80% less compared to paddy, wheat and sugarcane). Further, millets being rich in fibrous organic matter, are slow to break down in soil similar to our digestive systems. This aids in maintaining soil structure and retaining water. There is a need for farmers to adopt farming practices that have least impact on the environment while continuing to produce a large enough quantity of crops to sustain their livelihood and the country's food demand.

Intervention Details

After introduction of Odisha Millet Mission, farmers are mostly using bio-inputs like *Handi Khata*, *Jibamruta* and Nimamruta etc.as a part of their agricultural practices. Looking into the growing market demand, *Maa Hingula* women's SHG with support and technical guidance of Jashipur Farmers Producers Company Limited (JFPCL) started a bio-input unit in the year 2020 with financial assistance of Rs. 25,000 along with the required equipment received from JFCL. Initially, all SHG members received two days training on preparation of the bio-inputs from WASSAN. They now produce *Jibamruta, Handikhata* and *Nimastra* using local resources

like cow dung, cow urine, *Arakha* (Calotropis) leaves, *Karanja* (Indian beech) leaves, *Neem* leaves, jaggery, white ant sand and gram flour.

Impact

The first batch of production was started in July 2020 and JFPCL started its marketing in the block in August 2020. The SHG managed to prepare and sell 2,904 liters of *Jibamruta*, 30 liters of *Handi Khata* and 20 liters of *Nimastra*, making a profit of Rs. 7148. Based on discussions with Agriculture officials, JFPCL estimated that there is a demand for 3000 liters *Jibamruta*, 1000 liters *Handi Khata* & 500 liters *Nimastra* in the block, and this will continue to increase in the future. Looking at this increasing demand for bio inputs, the SHG is ready to scale up its production. As JFPCL is taking the responsibility of marketing, SHG members are quite hopeful of a secure income stream in the future. They are also happy that people are using their inputs not only in millet cultivation but also in paddy and vegetable cultivation.

How

Balaram Paik

escaped the clutches of moneylenders

Background

Balaram Paik was trapped in the debt of money lenders till 2018. He said *"... the whole community was dependent on the money lender, and this was our biggest problem. We knew that we were being cheated but could not do anything about it."* He has 6.5 acres of land where he used to cultivate various crops such as *mandia*, maize, vegetables, and paddy. Over the years however maize cultivation became the norm and use of chemical fertilizers increased significantly. As productivity reduced, use of fertilizers increased, further deteriorating soil quality. With declining yields, they became trapped under debt from money lenders and as a result were forced to cultivate maize. *".....we used to borrow money from Sahukara (Land Lord), and he gave us seeds and fertilizer to cultivate. He used to take away all the maize from us and gave us a fixed price , further increasing our debt. While the government MSP was Rs.1800 per quintal, Sahukara only gives us @ Rs 1000 per quintal."*

Intervention

Since the last three years, Balaram Paik and others started cultivating *Mandia* (Ragi or finger millet). With an MSP of Rs 3295 per quintal, this has helped them earn a decent livelihood and escape from the clutches of moneylenders. He shared that while millet cultivation has been present since the time of their forefathers, with the new methods of cultivation, the yields are significantly higher. He also shared that the CRP is very helpful and taught him new methods of millet cultivation and preparation of bio-inputs.

Impact

In the first year, Balaram's *Mandia* yield was 50 kgs and the next year it was 100 kg. He has cultivated 2 acres of *Mandia* this year and plans to gradually shift completely from maize to *mandia* cultivation.

THEMATIC AREA 2

MILLET PROCESSING AND VALUE ADDITION

Empowering Women through enterprise: Millet Processing Unit in Mayurbhanj

Background

Odisha Millets Mission has signed a Memorandum of Understanding with the Mission Shakti Department, according to which a pulveriser machine was allocated to *Maa Saraswati* women's SHG of *Badasialnai* village in Mayurbhanj district. This was according to OMM's plan to facilitate decentralized mechanized processing of small millets. Applications from interested groups were invited through ICDS and the facilitating agency undertook a feasibility study to finalise the SHG and also to help them initiate their enterprising activities. The pulveriser machine has the capacity to grind 5-8 kgs of grain in an hour and the SHG group started their entrepreneurship activity in April 2021.

Intervention Details

The community in *Badasialnai* is used to consuming millets only in the form of *Mandia Jau*. Without a grinding machine, they did not have access to millet flour and were consequently not aware of recipes using it. After receiving the machinery, the SHG has invested Rs.5000 from their savings to get the required electric connections (1 KW electricity is required). The machine not only grinds millets but can also grind rice, turmeric and other things. The SHG is allowed to decide the price of renting the machinery for use and in their monthly meeting decided on the price chart given below:

Item	Price
Rice	Rs. 5 per kg
Millets	Rs. 5 per kg
Turmeric	Rs. 20 per kg
Own SHG members can use the machine at a rate of Rs. 1 per kg for all items	

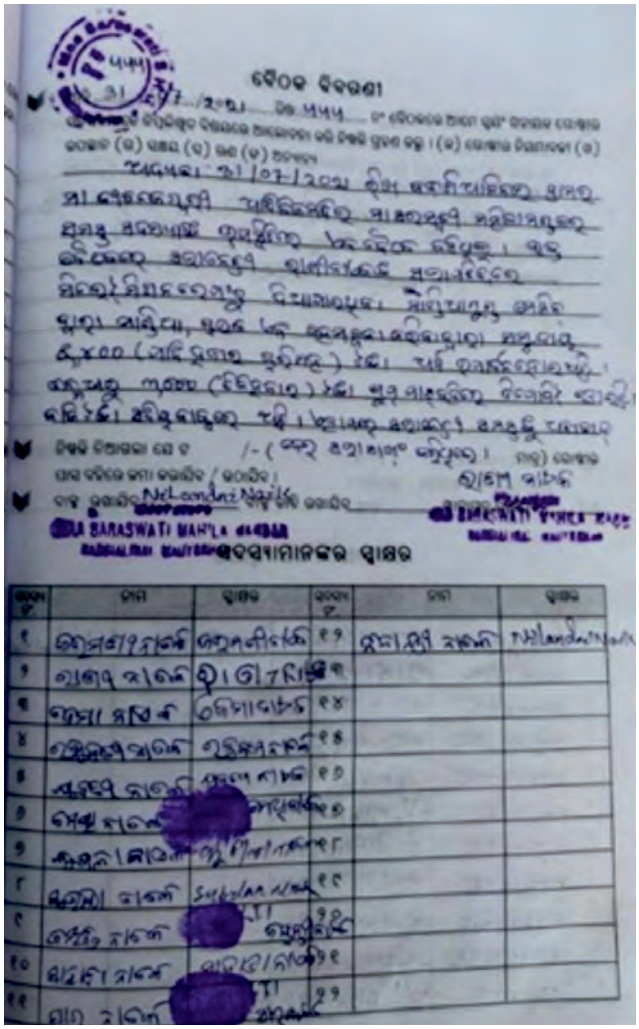
Lack of space to store raw material and finished products is one of the key challenges being faced by them.

Impact

As a part of their future planning, the SHG has decided to start millet value addition activities and setting up a millet kiosk at Jashipur market. They have also started coordinating with different shops in Jashipur market to launch the ***Saraswati brand millet flour***. They are now exploring various options available to them and having discussions with the CDPO and Jashipur Farmers Producers Company official to provide marketing support.

"Everyone in the village comes to us to process millets and rice. We also sell millet flour @ Rs.50 per kg. In the month of June, our profit was Rs. 5,400/- out of which Rs.3,000/- was earned during the three days of the Raja festival. In between April to July, our earnings has been quite significant – approximately Rs.14,000/-"

– SHG Member



The Success Story of
Koraput Cookies

Background

Koraput Cookies was originally started as a fellowship project of a SBI Youth for India fellow in Semiliguda block, Koraput (Odisha). It is now progressing further to become a self-sustainable enterprise in the region. With the support of DHAN Foundation, rural women of Koraput were brought together to form a producer group named 'Koraput Millet Producer Group'. The objective of this group is to produce and sell value added millet-products and generate employment for women. The SHG group started by baking millet based cookies, launching 'Koraput Cookies'.

Intervention Details

The SHG was very inspired by the business model of 'Shri Mahila Griha Udyog Lijjat Papad' and follows a similar set of principles for running the enterprise. Their guiding principles are transparency, quality and team-work. The business started small but with vision to scale-up quickly. After receiving training, it was also important for the SHG to build their capacity to enable them to continue the production independently. With the support of DHAN Foundation, Koraput, regional coordinator Mr. Bijaya Kumar Nayak and SBI YFI Fellow, these women have been able to reach customers in multiple states including Delhi, Assam, Rajasthan, Uttarakhand and Odisha. They are now receiving orders via the website www.koraputcookies.com as well as retail outlets.

The business has faced multiple challenges since last year, including a resource crunch and the second wave of COVID-19 hitting the enterprise hard. However, the dedicated women continue to put in all effort to run the business and make

it sustainable. Some of the challenges they face includes market competition, availability of infrastructure, and volume of sales and lack of systematic procedures for running the enterprise.

Impact

Koraput Cookies is loved and supported by many given its excellent taste and health-benefits. Organic ragi (finger-millet), whole wheat flour, jaggery and nuts are the major ingredients of the cookies. The SHG group is now planning to expand the enterprise and scale it up further by increasing production capacity and providing employment to more women with the increasing volume of sales.

THEMATIC AREA 3

MILLET CONSUMPTION

Millet Girl Mili

Background

Rinki Panda is a Millet Recipe Trainer and Community Resource Person in Keonjhar district of Odisha. When she started, she had no awareness about agriculture or millets and it was only during the CRP training sessions that she heard about millets for the first time. She started conducting meetings with farmers and convincing them to cultivate millets because of its health benefits. While browsing on YouTube one evening, she searched for millet related food products and decided to prepare *Ragi Ladoo* for her family members. She received positive feedback from her family and community members. She even started distributing them among farmers to convince them to grow *mandia*.

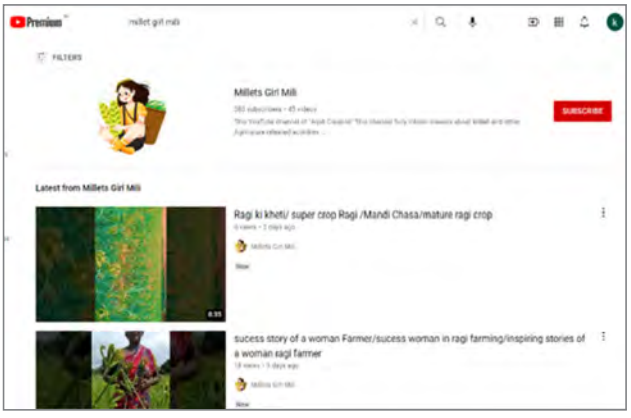
Intervention Details

In 2020, she started value addition activities at home. Initially, the objective was not profitability but rather gaining entry into a competitive market. Due to her innovative recipes, she became a millet recipe trainer and is now providing 25 to 30 trainings annually and receiving a remuneration of Rs.400/- per day. Additionally, she receives orders from the public/ government staffs/ SHGs to supply different millet based food items like *dahi vada, ragi ladoo, mandia chuna, idli, custard, mandia* coffee etc. She also prepares mandia chicken biryani and chicken pakoda for occasions.

Rinki regularly uploads recipe videos on YouTube to encourage the consumption of millets. Find her as ***millet girl mili*** or click on **https://www.youtube.com/channel/UC1wZmW8_3gMzeAZ6sxtGjfA**

Impact

Rinki is able to earn Rs.20,000 per month on an average now whereas prior to her work on OMM and millet recipes, she was struggling to sustain her livelihood. She is happy with her current income and plans to open a food court in Keonjhar district in 2-3 years' time. She has already decided the menu - *Dosa, Vada and Idli for breakfast, mandia biryani for lunch and dinner and mandia pakoda* as an evening snack.



"The continued efforts to bring the millets back to the plate are highly commendable and amazing; truly her cooking ability for millets is magical"

– DC WASSAN

Millets on Wheels

Background

"Millets on Wheels" was the brainchild of the Facilitating Agency Centre for Regional Education, Forest & Tourism Development Agency (CREFTDA) and was started in June'2020 in the form of a food truck. The food truck is being managed by Jashipur Farmers Producer Company Ltd. in Jashipur block to provide hot cooked millet products like *chakuli, bara, idli, jilapi* and dry items like biscuit and *namkeen* etc. with the support of Mission Shakti SHGs. The truck covers both rural and urban areas with an aim of creating a healthier eating culture among the people of the Jashipur Block.

Intervention Details

The FPO received a grant-in-aid of Rs. 4,00,000 (Rs.2,00,000 for the vehicle and Rs. 2,00,000 as working capital) from Government of Odisha to start this initiative. They have also recruited three staff members (1 Manager @Rs.200 per day, 1 driver @Rs.200/- per day and 1 chef @ Rs.300/- per day). The profit is deposited in the company account and profit sharing will start once the working capital is recovered. The vehicle vends various hot cooked recipes and the most in demand items are *Mandia Malpua and Mandia Samosa*.

Impact

Since its inauguration, millets on wheels got to run only for three months because of COVID 19 restrictions. In these 3 months, total revenue earned was Rs.1, 32,000 with a profit margin of approximately 25% to 30%. They also participated in the *Krushi* Odisha fair in Bhubaneswar, which was organized by Department of Agriculture

and Farmers Empowerment, Govt of Odisha and received positive feedback. The company has decided to launch *mandia* chowmien very soon and as a part of its future plan, the company personnel are visiting government and non-government offices to get orders for supplying snacks and tiffin.

> ***"The taste of food items is very good and this millet on wheel is a great innovation and initiative n the state of Odisha"***
>
> **– Director, AFE**

"Finger Millet flour: A Magical Seed for Healthy Life"

Background

The main constraint in *Mandia* consumption is the need for processed grains to make delicious recipes. Prakash Flour Mill was established in 1952 at Rajgangpur Urban Local Body of Sundargarh district. In 2016-17, one of his regular customers, a doctor suggested that they expand their product portfolio to *Mandia* flour. The doctor shared the health benefits of *Mandia*. At the time however, millets weren't being produced in any nearby areas and it was only available at Simdega which is around 65-75 kms away. He was able to procure 20 kgs of *Mandia* from the open market @ 25 per kg and prepared *Mandia* flour for the doctor and his family. Based on the suggestion received from the doctor, he and his family members started consuming this flour. Other people from nearby areas heard about the supply of millet flour and started asking for it. In 3 years, he became the sole supplier of Mandia flour and now many other shopkeepers were coming here to purchase *Mandia* flour to meet the demand.

Intervention

The processing of *mandia* flour is not easy and raw *mandia* grains need to be cleaned and dried for 5 - 7 days. Procurement to packaging is a five step process – 1. Procurement; 2. Cleaning; 3. Drying; 4. Grinding; 5. Packaging. The mill now procures *mandia* from the local markets within Rajgangpur to prepare the flour and supplies it to local shopkeepers. The wholesale price of 1 kg of *mandia* flour is Rs. 40 and the retail price of *Mandia* flour in Rajgangpur Market is Rs. 50/-.

Calculation of Production Cost:

Details	Rupees per KG
Procurement of *Mandia*	30
Cleaning and drying	2
Machinery cost	2
Packaging	1
Profit	5
Selling Price	**40**

"Consuming Mandia can prevent many serious diseases but availability of it in suitable ready to eat form is the biggest challenge. At my level I am disseminating the benefits of eating Mandia but my reach is limited."

– Mr. Aggarwal

THEMATIC AREA 4

CLIMATE RESILIENCE

Bio-input for Millet Production

Background

Maa Durga Bahini SHG was formed in 2010 with 11 women of Sanabataguda village of Kandhamal district. In 2014, they started incense stick preparation as their first income generation activity. In 2017, PRADAN identified this SHG to produce bio inputs to support millet production. They provided training to SHG members on preparation of *Handi Khata*. Since then, the SHG has been preparing these bio inputs and selling it locally. Initially very few people were growing organic vegetables and therefore the demand for bio-inputs was low. However, after the introduction of Odisha Millet Mission, an exponential increase has been seen.

Intervention Details

Handikhata' is a medicinal bio-input prepared from organic material, which is applied to crops to protect them from diseases and pests. The *Handikhata* solution (1:10) can also be effectively used as an organic seed treatment solution. This bio-input can be easily prepared in 7 days as given in the table below.

S.No.	Ingredients	Quantity	Price	Output	Selling Price
1	Cow dung	1 kg	Free	5 Ltr	@ Rs.25 per Ltr.
2	Cow Urine	5 ltr	Free		
3	Jaggery	50 gm	Rs.2.50		
4	*Neem* Leaves	1 kg	Free		
5	*Karanja* Leaves (Pongamia Pinnata)	1 kg	Free		
6	*Arakha* Leaves (Calotropis gigantean)	1 kg	Free		
7	White Ant sand	100 - 150gm	Free		

For administration to crops, the *Handikhata* solution needs to be mixed with water in a 1:10 ratio and sprayed directly on the crops before the first weeding whereas a 1:5 ratio solution with water is applied before the second and third weeding. This bio-input has a relatively long shelf life of three months from the date of preparation.

Impact

The SHG has been able to earn Rs. 43,000 by selling bio inputs and is very grateful to OMM and PRADAN for giving them the skill and capacity to grow and secure their livelihoods. Bikash Jyoti Farmers Producers Company Ltd. has planned to take-up marketing of *Handi Khata* and are also identifying other SHGs to prepare these bio inputs. The company has already mobilised Rs. 20,000/- as working capital for this purpose.

Odisha's First Solar Millet Processing Unit

Background

Odisha inaugurated its first solar millet processing unit in August 2021 in Mohana Block of Gajapati district. This unit has been established with support from Odisha Millet Mission, Watershed Support Services and Activities Network (WASSAN), and SELCO Foundation and is managed by Taptapani Farmer Producer Company (FPC) and facilitated by SACAL. The FPC is constituted by both men and women. The area around this unit, faced acute shortage of grid electricity owing to its remote location. This solar powered unit is an innovative and environmentally friendly solution. The unit can run for **4 hours with full capacity with a full day charge**. Processing of Ragi, Foxtail Millet, Little millet, Sorghum, etc. can be done here. The equipment available at the unit is listed in the box below.

- **A set of Millet Grader:** Separating inert materials like big stones, sticks, sand, grass, etc from the millet grains.
- **De-stoner with Aspirator:** Separating the same size stones, mud balls from the grains.
- **Multigrain Huller:** Remove the husk and separate the millets from the husk. It has a capacity of 100-150kg/hour.
- **Polisher:** Removing the thin glome layer or the upper thin layer from millet grains and produce polished grains. It has a capacity of 50-100 kg/hour.
- **Pulveriser:** Grinding millet grains into powder form. The capacity is 10 to 15 kg/hour.

The cost of setting up the machine was Rs. 7,00,000 (invested by WASSAN) while the Solar unit setup cost was Rs. 7,50,000 (invested by SELCO). There is a fixed cost of Rs. 60,000 per annum for the operator's salary along with the rental cost of the building. Grading, destoning, polishing, and pulverizing of millets can be undertaken and the FPO can earn processing charges and can also use for self-business purpose. The FPO is currently planning to process millets to feed local consumption and marketing of millet in local and nearby urban markets.

THEMATIC AREA 5

MAINSTREAMING IN SOCIAL SAFETY NET

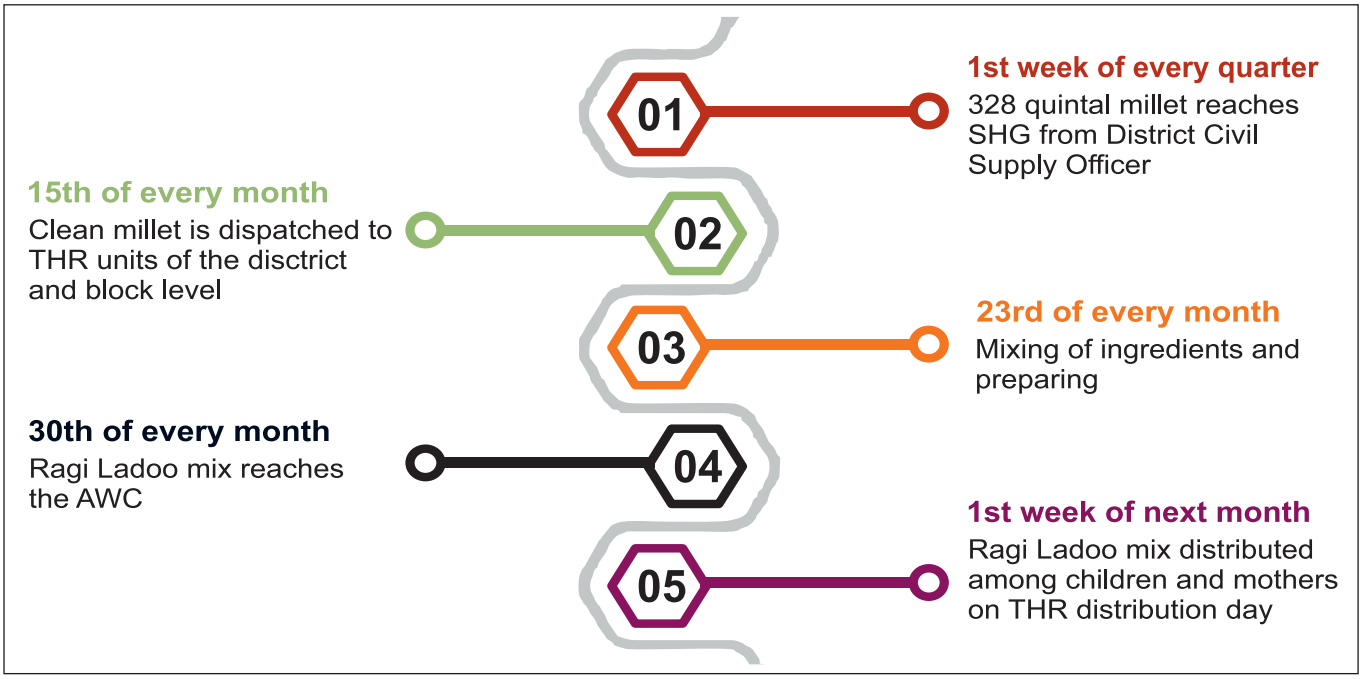
Ragi Ladoo introduced at *Anganwadis*

Background

Odisha Millet Mission aims at promoting consumption of millets to improve nutrition outcomes. Ragi Ladoo (*Ladoo* mixture during covid) was added to the meals for pre-school children (3 to 6 years) who visit *Anganwadi* Centres (AWC). The district administration with technical support from Central Food Technological Research Institute (CFTR) Mysore launched this pilot project in *Keonjhar Sadar* Block in July 2020 where 8000 preschool children from 332 AWCs were provided with Ragi *Ladoo* for 2 months as an additional item to their existing morning snacks. In November 2020, this program was scaled up to all the 3257 AWCs of the district and 27,000 children were provided with 8 Ragi Ladoos (20 gms) per month.

Ingredients – Ragi Ladoo Mix

Mandia: 96 gm; Groundnut: 08 gm; Sugar: 48 gm, Sesame: 08 gm, Elachi: 0.32 gm



Intervention Details

District Mineral Fund and WASSAN were given responsibility to design the program in consultation and coordination with District Social Welfare Officer. A feasibility study was undertaken to identify suitable SHGs. 19 SHGs from different blocks were identified to prepare the Ladoos and 1 SHG at the district level was selected for cleaning and distributing ragi to the other SHGs. A budget of Rs 1.5 Cr was earmarked per year with 1288 quintal of annual requirement for ragi. A quality control committee was formulated at the district level and each month SHGs send a packet for testing.

Impact

Based on positive feedback of children, mothers and *Anganwadi* workers, the district is planning to provide 16 *Ladoos* instead of 8. The SHG involved in the cleaning of *mandia* is able to make a profit of Rs. 30,000/- per month and the SHGs preparing the Ragi Ladoo is making a profit of Rs.16000 - 17000/- per month.

> ***"The taste of Ragi Ladoo is very good. My children eat it happily for 4-5 days every month."***
>
> **– Mother of 3 year old**

THEMATIC AREA 6

GENDER AND INCLUSION

The Story of Jyoti Dang – a progressive farmer from Sundargarh

Background

Jyoti Dang, lost her husband in the year 2011 to a chronic liver disease. She has a son who at the time was only 7 years old and had very limited means of livelihood. While her family members and relatives helped her, she realized she had to start working to provide for her son. As she didn't have any agricultural land, she started working as a daily wage labour. In 2018, DISHA facilitating agency went to Jyoti's village to have an introductory meeting with community members on millets. Jyoti was present in the meeting and during the discussion found out that millets can be grown in waste lands with limited labour requirements and with less inputs. She was also fascinated to hear that these crops can be grown organically and have significant positive health outcomes. The fact that the government is giving incentive for cultivation and that there is an established market to sell her produce clinched the idea of growing millets for her.

Intervention Details

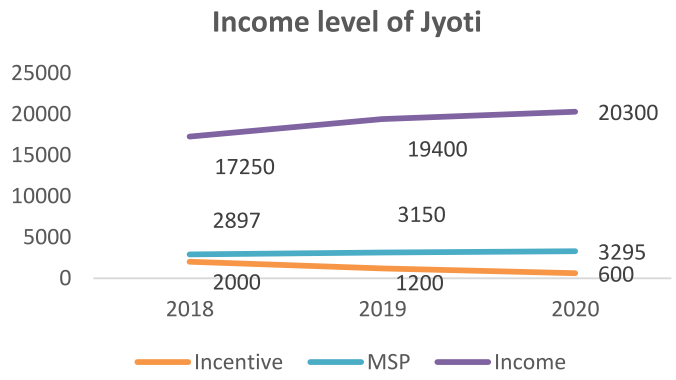
Jyoti did not have any land to cultivate millets, so she started discussing with community members to start share cropping on fallow lands. In this arrangement, the farmer bears all expenses and 30 percent of the total produce is given to the landlord as payment. She was able to secure one acre of land to start millet cultivation. The Community Resource Person provided several recommendations as well as training to Jyoti

to adopt SMI agronomic practices and also made himself available at different stages of the harvest cycle. Jyoti and her 14 year old son undertook cultivation. She hired additional help for land preparation as it required strenuous physical labour. She also prepared her own bio inputs and is now multi-cropping.

Impact

From 2018-2020, Jyoti's land under cultivation has increased from 1 to 1.25 acre and production from 5.3 to 6.8 quintal. Her income levels have also steadily increased even though the amount of incentive being provided by the

government decreased each year. Jyoti has also started diversifying her source of income, and has established vermicompost unit (selling price is @Rs. 15/ per kg) along with a poultry farm in her backyard.



"She is one of the most dedicated women of this village. She faced a lot of problem but still OMM and her hard work has helped her to gain dignity and a livelihood. She availed all benefits under OMM and attended all training programmes. Now, she inspires other women to get involved in OMM and to contribute towards their family's livelihood."

– Block Coordinator, DISHA

Female Pioneer of Millet Cultivation –
Pratima Pradhan

Background

Pratima Pradhan lives in Lamungia village of Raikia Block with her two daughters and a son. Her area is famous for vegetables and turmeric and like other members of the community she too only grew these crops along with paddy. In the year 2019, the community resource person and block coordinator conducted an awareness session and discussed the various benefits of growing millets – economical, environmentally sustainable and its associated health benefits. However, no farmer came forward to undertake millet cultivation. Availability of a ready market for paddy and turmeric and dependable prices were the main attraction for growing these crops as opposed to millets

Around the same time, Pratima had been diagnosed with several ailments including anaemia. Her doctor advised her to consume millets to reduce her medication requirements. The alternative being daily medication and injections. When she visited the local markets, she realised that millets were simply not available. The words of the block coordinator came back to her and she made a decision to start growing millets in 1 acre (out of the 3 acres) land she owned.

Intervention Details

Pratima became the first lady of her village to undertake millet cultivation. She received technical support from the CRP and Block Coordinator and learnt about the SMI agronomic practices to cultivate *Mandia* (Ragi). She also cultivated *Janha* (Sorghum) in a small patch of land using line sowing. The first millet harvest gave her 3500 kg of Ragi and 80 kg of Sorghum. She received incentive from the government and sold 300 kg of Ragi at *Mandi* @ Rs.31.50 per kg and also got Rs.1500/- by selling 50 kg of Sorghum

to the Raikia Farmers Producers Company Limited @Rs.30 per kg. She expanded the area under millet cultivation in the second year to 2 acres and by the third year, she exclusively cultivated millets and got a profit of more than Rs. 25,000.

Impact

Pratima is now happier and healthier thanks to OMM. Looking at her success, one of her neighbours, Sibaram Digal, was inspired to undertake millet cultivation. Along with cultivation, she is also spreading awareness among women to start millet cultivation activity and has so far managed to encourage 12 women to cultivate millets in covering 17 acres of land. In these 2 years, she has attended various training programs organized at Raikia and has also organized a recipe demonstration program with the help of other women of her community.

"Along with other women, I am continuously trying to make millets available in each and every household so that people will consume millet for their own health benefit".

– Pratima Pradhan

Mandia Maa –
Subasa Mohanta

Background

Subasa Mohanta is not just a name but a brand for Millet promotion in the State of Odisha. She is a resident of Singarpur village in Mayurbhanj district and with the help of the CREFTDA facilitating agency, started millet cultivation in 1 acre of waste-land owned by her. She was able to get a yield of 8 quintal of *Mandia* from the acre. The awareness generation activities on nutritional value of *Mandia* initiated by OMM resulted in significant demand at the local markets and helped her sell 5 quintals at Rs.40/- per kg. She kept the rest for her family's consumption and distributed *Mandia* among her friends and relatives.

Intervention Details

In 2021, she diversified into the production of Sorghum and *Kodo* millet in 8 acres of land (leased @ Rs. 2000/- per year). She also started cultivating two varieties of *mandia* - *Bhairabi* and *Srichaitanya*. Subasa is expecting approximately 60 quintal of millets, 40 of which she will sell via MPAS and earn Rs.1,35,080/- (@ Rs. 33.77 per kg). She will try to sell the rest in the local markets to earn approximately Rs.80,000/- (@ Rs.40/- per kg). She also prepares bio inputs on her own using poultry manure in the cultivation process. She regularly seeks information and assistance from the Block Agriculture Officer and Assistant Agriculture Officers.

Subasa received training on agronomy practices and crop cutting, bio-input preparation, seed treatment/ preparation and value addition and recipe preparation. Over the years, she has developed an expertise in these topics and many farmers come to learn from her. She is an inspiration for other millet farmers of the district and because of her dedication, determination and hard work, she is known as *Mandia Maa* across the district.

Impact

Subasa has received various awards and recognition for her dedication, determination to promote millet in the state of Odisha. On the eve of World Food Day, a National workshop on Nutri Cereals (Millets) was organized on 16th October 2019. She was felicitated as a leading millet farmer in the State and received an award from Principal Secretary, Agriculture and Food Production, Government of Odisha.

INTERNATIONAL CASE STORIES

High Yield Pearl Millet in Burkina Faso

Burkina Faso has approved the commercial use of its first pearl millet hybrid called Nafagnon - a single-cross hybrid. Nafagnon yields as much as 45 percent higher than popular variety Misari-1. It is more resistant to downy mildew and has higher fodder yield potential. Nafagnon matures early in 80-85 days and has a yield potential of about 3 tons per hectare; early maturity helps overcome terminal drought stress. It is a dual-purpose (grain and forage) hybrid resistant to downy mildew, the most harmful pearl millet disease in West and Central Africa. The seed size, yield potential, stay-green and earliness of the hybrid are traits highly preferred by farmers and end users in Burkina Faso.

The research for development partnership between ICRISAT and INERA has been benefiting smallholder farmers in Burkina Faso. INERA's approach to millet hybrid development and commercialization in Burkina Faso involves partnerships with farmers and the private sector. Nafagnon was tested by more than 500 farmers and three seed companies – NAFASO, FAGRI and EPAM – were involved.

Project: *Accelerated Varietal Improvement and Seed Delivery of Legumes and Cereals in Africa (AVISA)*

Funder: *Bill & Melinda Gates Foundation, USAID*

Partners: *International Center for Tropical Agriculture (CIAT), International Institute of Tropical Agriculture (IITA), NARS partners from Burkina Faso, Ethiopia, Ghana, Mali, Nigeria, Tanzania and Uganda, and ICRISAT*

Reducing Anaemia through Millet Consumption in Niger

Millions of women and children suffer from Anaemia in Africa making it a significant public health concern. A key reason identified for high anaemia levels are diets deficient in iron. Chakti, a new type of bio-fortified pearl millet has an additional 20% of the estimated average requirement of iron along with higher zinc content. Chakti was officially released by the Government of Niger in 2018 for commercial cultivation. In addition to the nutritional benefits for consumers, chakti matures 40 days earlier and has a 30% greater yield than local varieties, as well as resistance to downy mildew disease.

As a result of this improved nutrition in millions of households in sub-Saharan Africa is expected including enhanced physical and mental performance of children as well as of women of reproductive age. In Benin, consumption of Chakti led to fulfilment of the daily iron consumption by pregnant and non-pregnant women resulting in profound positive impacts on livelihoods."

Project: *Genetically enhanced pearl millet with high grain iron density for improved human nutrition in West Central Africa*

Funder: *HarvestPlus*

Partners: *Institut national de la recherche agronomique du Niger (INRAN), Institut Sénégalais de Recherches Agricoles (ISRA), Savanna Agricultural Research Institute (SARI), Institut de l'Environnement et de Recherches Agricoles (INERA), Institut d'Economie Rurale (IER), Usmanu Danfodiyo University, Sokoto (UDUS) and ICRISAT*

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