



# Promotion of Millets & Organic Farming



## 1. Preamble

Millets are group of small grained cereal food crops which are highly tolerant to drought and other extreme weather conditions and are grown with low chemical inputs such as fertilizers and pesticides. Most of millet crops are native of India and are popularly known as Nutri-cereals as they provide most of the nutrients required for normal functioning of human body. Millets are classified into Major Millets and Minor Millets based on their grain size. Pseudo millets are so called because they are not part of the Poaceae botanical family, to which 'true' grains belong, however they are nutritionally similar and used in similar ways to 'true' grains.

The importance of Millets and declared Millets comprising of Sorghum (Jowar), Pearl Millet (Bajra), Finger Millet (Ragi/Mandua), Minor Millets i.e., Foxtail Millet (Kanngani/kakun), Proso Millet (Cheena), Kodo Millet (Kodo), Barnyard Millet (Sawa/Sanwa/Jhangora), Little Millet (Kutki), Brown top millet and two pseudo millets i.e., Buck- wheat (Kuttu), Amaranth (Chaulai)) as "Nutri-Cereals" for production, consumption and trade point of view.

Millets are gluten free and non- allergenic. Millet consumption decreases triglycerides and C- reactive protein, thereby preventing cardiovascular disease. All millets are rich in dietary fibre. Dietary fibre has water absorbing and bulking property. It increases transit time of food in the gut which helps in reducing risk of inflammatory bowel disease and acts as detoxifying agent in the body.

Similarly, Organic farming is a production system which avoids or largely excludes the use of synthetically compounded fertilizers, pesticides, growth regulators, genetically modified organisms and livestock food additives. To the maximum extent possible organic farming system rely upon crop rotations, use of crop residues, animal manures, legumes, green manures, off farm organic wastes, biofertilizers, mechanical cultivation, mineral bearing rocks and aspects of biological control to maintain soil productivity and tilth to supply plant nutrients and to control insect, weeds and other pests.

Organic methods can increase farm productivity, repair decades of environmental damage and knit small farm families into more sustainable distribution networks leading to improved food security if they organize themselves in production, certification and marketing. During last few years an increasing number of farmers have shown lack of interest in farming and the people who used to cultivate are migrating to other areas. Organic farming is one way to promote either self-sufficiency or food security. Use of massive inputs of chemical fertilizers and toxic pesticides poisons the land and water heavily. The after-effects of this are severe environmental consequences, including loss of topsoil, decrease in soil fertility, surface and ground water contamination and loss of genetic diversity.

Organic farming which is a holistic production management system that promotes and enhances agro-ecosystem health, including biodiversity, biological cycles, and soil biological activity is hence important. Many studies have shown that organic farming methods can produce even higher yields than conventional methods. Significant difference in soil health indicators such as nitrogen mineralization potential and microbial abundance and diversity, which were higher in the organic farms can also be seen. The increased

soil health in organic farms also resulted in considerably lower insect and disease incidence. The emphasis on small-scale integrated farming systems has the potential to revitalize rural areas and their economies.

#### Advantages of organic farming

- It helps to maintain environmental health by reducing the level of pollution.
- It reduces human and animal health hazards by reducing the level of residues in the product.
- It helps in keeping agricultural production at a sustainable level.
- It reduces the cost of agricultural production and also improves the soil health.
- It ensures optimum utilization of natural resources for short-term benefit and helps in conserving them for future generations.
- It not only saves energy for both animals and machines but also reduces the risk of crop failure.
- It improves the soil's physical properties such as granulation, good tilth, good aeration, easy root penetration, and improves water-holding capacity, and reduces erosion.
- It improves the soil's chemical properties such as the supply and retention of soil nutrients, reduces nutrient loss into water bodies and the environment, and promotes favourable chemical reactions.

Utkal University in association with various government and private bodies has been promoting the adoption of millets in dietary habits and adoption of organic farming since a long time. The university is also collaborating with 'The Goethe University', Germany in conducting various studies in the cereal culture of Odisha. Along with this, Utkal University has also set up a Rural Technology Park which showcases model research on organic farming. The students and faculties of the University have been associated with a number of projects to promote millets and organic farming in the state.

In the subsequent sections of the document, we highlight the major events, projects and workshops conducted by the University for promotion of Millets and Organic Farming.

## 2. Events on Millet Promotion

### Workshop Held On “Shaping the Sustainable Future Of Odisha Millet Mission”



Odisha Millets Mission organised a multi-stakeholder workshop titled “Shaping the Sustainable Future of Odisha Millets Mission” in collaboration with the University of York and Centre for Agri-Management (CAM), Utkal University at Krushi Bhawan.

Addressing the workshop, Dr. Arabinda Padhee, Principal Secretary of Agriculture & Farmers’ Empowerment talked about the systems transformation, leadership approach, and infrastructure support initiated through Odisha Millets Mission.

OMM is driven by principles of equity and justice to rainfed upland farmers. He shared that Odisha is adopting whole of society and whole-of-government approach for mainstreaming millets.

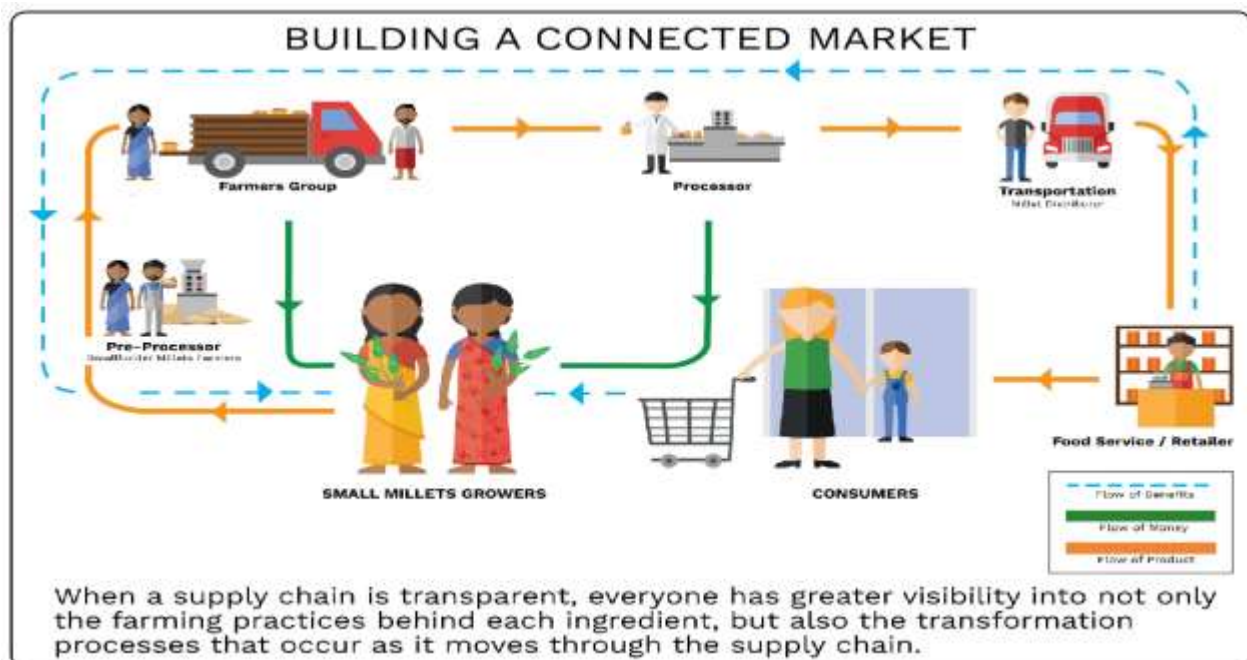
The workshop was inaugurated by Mr Rohit Lenka, Director of Agriculture & Food Production. An overview of Odisha Millets Mission was given by Mr. Sailendra Mohanty, Joint Director of Agriculture, OMM. This was followed by a debriefing on the objectives of the workshop by Prof Sonal Chaudhury of the University of York and Dr B. Bhuyan of CAM to the participants. They shared that the key objectives of the workshop are to review current challenges across the millet mission supply chains for its sustainability, review best practices, indicators and frameworks for capturing the sustainability performance of millet supply chains/mission, define data, technology, governance and partnership needs for dynamic value co-creation for all stakeholders and propose innovative solutions for sustaining millet value chains.

Farmers shared that before OMM, there was no awareness of different aspects of the millet value chain and the price of the millet was very low. This led to demotivation to cultivate millets. But after OMM, there is a good price for millets due to procurement. In addition, there is an increase in awareness of millet and there is a slow change in diets. Farmers also suggested that Rabi procurement of millets may also be taken up by the Government.

WSHGs also shared that in addition of infrastructure, more skilling and exposure visits may also be taken up on the processing and value addition and bookkeeping. Mother kitchen facility may also be created for the WSHGs. Toilet facilities may also be provided near Kiosk locations by the District Administration. WSHGs suggested that if the Government takes up the inclusion of millets in MDM, Hospitals, Army canteens, railways, and airports, then it will create more market for the WSHGs. In addition, further standardisation of training and packaging may be taken up.

The technical experts from different agencies shared the current research and development in different fields and deliberated on what new activities could be taken up under OMM. Key suggestions that emerged from this group were facilitating an ecosystem of services through carbon markets, standardizing the SOPs for private restaurants/companies/cafes/ entrepreneurs/products, setting up of incubation centre for rural startups, and training farmers and farmer groups on diversified products and packaging. They opined that capacity building of FPOs to inculcate professionalism for dealing with markets, a framework for engagement with private players, undertaking a study of urban and rural markets from an export point of view, and documentation of indigenous knowledge systems may be taken up on mission mode.

Workshop was attended by representatives of Mission Shakti Deptt, Planning & Convergence Deptt, ST SC RTI, AIIMS, CAM, OUAT, ICAR-NRRI, ICAR-IIMR, ICAR-CIWA, Odisha State Biodiversity Board, Institute of Hotel Management, Executive Chef ITC, Chef Michel, BOCCA Café, Select Fresh (a Startup of Utkal University) and others. The workshop also saw the participation of farmers, FPOs and NGO partners.



## OdishaPlus Bureau: 'Humble Millets: Hope for Future': Brainstorming at 'Krushi Odisha 2023'

The Govt of Odisha has launched a string of initiatives to revive millets in farms and plates, Principal Secretary, Agriculture and Farmers' Empowerment, Dr. Arabinda Kumar Padhee said.



### Pr Secy Agriculture & FE Dept, GoO Arabinda Padhee Addressing the Seminar

Addressing as the chief guest at a seminar titled 'Humble Millets: Hope for Future', Dr, Padhee said, "The year 2023 is being celebrated as the International Year of Millets. Through the Odisha Millets Mission (OLM), we have undertaken a plethora of activities to revive millets in farms and plates. Thereby, we are trying to create large consumer awareness, so that the consumer adopts the nutritious and healthy millet crop in their diet." Dr. Padhee also enumerated the health benefits of climate-resilient millets and appealed to people to add these multi-grains to their diet.

**The seminar was organised on the sidelines of the State's flagship mega annual Agri Expo cum Knowledge Event, 'Krushi Odisha 2023' with the academic support of Centre for Agri-Management, Utkal University . The students of MBA(Agribusiness) management, Utkal University along with international experts, resource persons, farmers and members of women self-help groups participated in the seminar where agronomists presented their views on the ways to cultivate millets at homes and achieve growth in the production of the crop in the State. The Centre for Agri-Management also received the special award on "Helping Agribusinesses—Small Millets Value Chain"**

"Before the launch of the OMM in 2017, Odisha was producing only 6 quintals of millets per hectare. At present, the volume has increased to 15 quintals. Moreover, the crop is now being exported from Odisha to countries in the Middle East," said Dr Konda Reddy, Officer -in- Charge of the UN Food and Agriculture Organization (UN's FAO).

Elizabeth Faure, Country Director, World Food Programme (WFP) India, spoke about the 'Mapping and Exchange of Good Practices' initiative to increase the production and consumption of millets. She appreciated the Government of Odisha for pioneering the OMM in



2017, even before the UN in 2018 announced to observe 2023 as the 'International Year of Millets'.

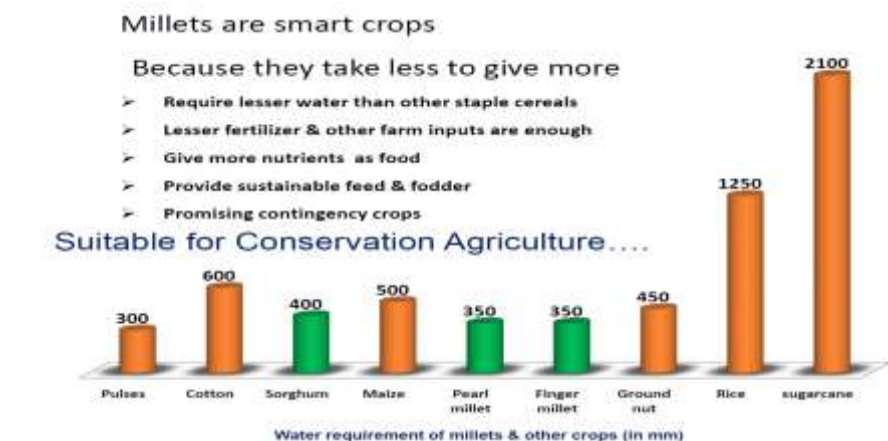
According to Dr CV Ratnavathi, Director, ICAR-IIMR, Ragi (Millets) production and consumption in Odisha is catching up swiftly. She praised Odisha for the transformation: from a rice-producing state to millet producing state, and pledged to extend all technical support to the state. "In order to support millet start-ups, ICAR-IIMR has created a training programme. As part of this initiative, millet entrepreneurs receive funding up to Rs 5 lakh," she informed.

Dr Ulac Demirag, Country Director, International Fund for Agricultural Development (IFAD), while proposing the vote of thanks, stated that millets is one of the key solutions to challenges like malnutrition and climate change. "The event concludes with a hope to make Odisha realise its vision of becoming a globally recognised agricultural state," he said.



The entire seminar was interpreted in real time from English to Odia so as to facilitate local farmers and participating members of the public to understand the address by foreign speakers over individual headphones. It is worth mentioning here that the Government of Odisha launched the OMM in 2017 with the objective of popularising the cultivation of millet and allied cereals with a view to enhance farmers' livelihood and promote healthy alternative in people's daily consumption. The OMM has received wide recognition in the country.

The following topics were discussed and shared

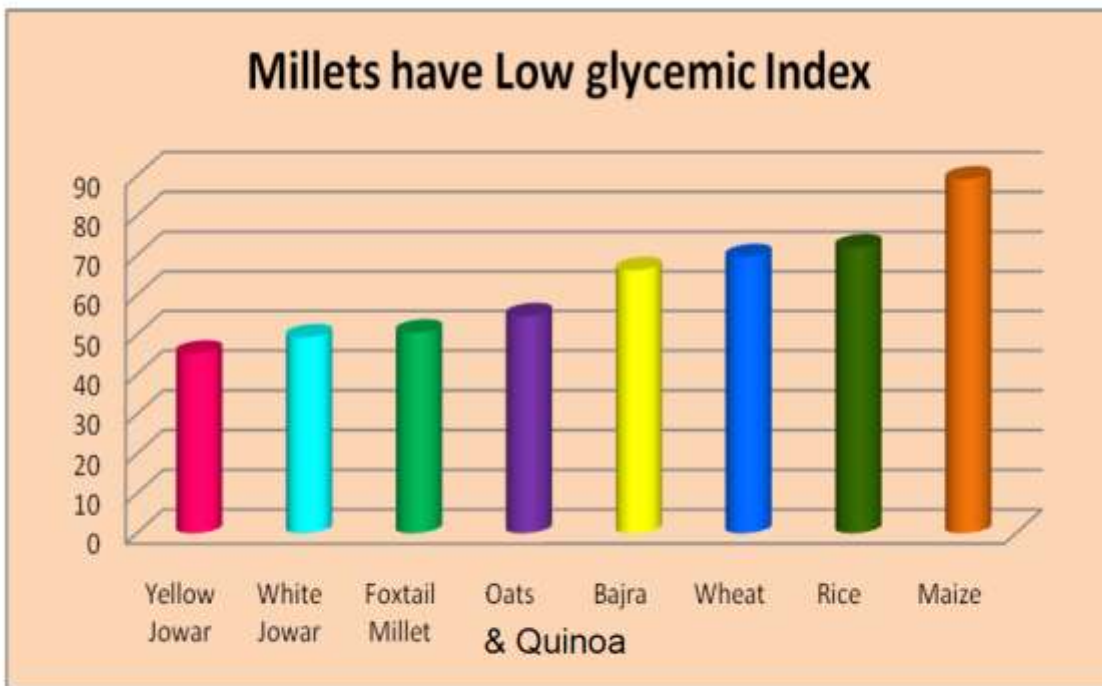


## Nutritional composition in comparison to rice and wheat

Grain (Millet /Cereal)	Carbohydrates (g)	Protein (g)	Fat (g)	Energy (Kcal)	Dietary fibre (g)	Ca (mg)	P (mg)	Mg (mg)	Zn (mg)	Fe (mg)	Thiamin (mg)	Riboflavin (mg)	Niacin (mg)	Folic acid (µg)
Sorghum	67.7	09.9	1.73	334	10.2	27.6	274	133	1.9	3.9	0.35	0.14	2.1	39.4
Pearl Millet	61.8	10.9	5.43	347	11.5	27.4	289	124	2.7	6.4	0.25	0.20	0.9	36.1
Finger millet	66.8	07.2	1.92	320	11.2	364.0	210	146	2.5	4.6	0.37	0.17	1.3	34.7
Kodo millet	66.2	08.9	2.55	331	06.4	15.3	101	122	1.6	2.3	0.29	0.20	1.5	39.5
Proso millet*	70.4	12.5	1.10	341	-	14.0	206	153	1.4	0.8	0.41	0.28	4.5	-
Foxtail millet*	60.1	12.3	4.30	331	-	31.0	188	81	2.4	2.8	0.59	0.11	3.2	15.0
Little millet	65.5	10.1	3.89	346	7.7	16.1	130	91	1.8	1.2	0.26	0.05	1.3	36.2
Barnyard millet*	65.5	06.2	2.20	307	-	20.0	280	82	3.0	5.0	0.33	0.10	4.2	-
Wheat	64.7	10.6	1.47	321	11.2	39.4	315	125	2.8	3.9	0.46	0.15	2.7	30.1
Rice	78.2	07.9	0.52	356	02.8	07.5	96	19	1.2	0.6	0.05	0.05	1.7	9.32
Amaranth seed	61	13.3	5.6	356	7.5	162.0	412	270	2.8	8.0	0.04	0.04	0.52	24.7
Quinoa	54	13.1	5.5	328	14.7	198.0	212	119	3.3	7.5	0.83	0.22	1.7	173
Buckwheat*	72	13.3	3.4	343	10.0	18.0	347	231	1.0	2.2	0.101	0.43	7.02	

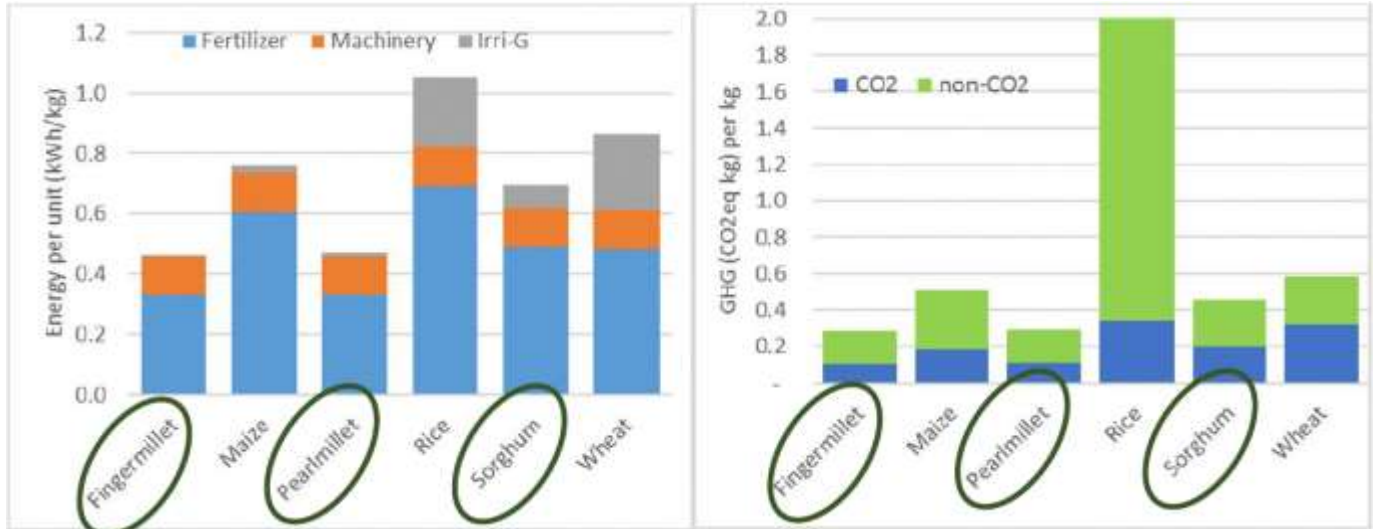
Source: Indian Food Composition Tables, NIN -2021

\*Nutritive value of Indian Foods




**Good for diabetes**








Millets are farmer & environment friendly Crops


## Health benefits of Millets

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**Celiac disease:** Millets are gluten free grains hence, used for celiac disease patients.
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**Anti-diabetic properties:** Millets consumption lowers blood glucose response and glycosilated hemoglobin thus, rendering low glycaemic index; helps in reducing the risk of *diabetes mellitus*
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**Reduction of oxidative stress:** Free radicals, are removed by the phenolic compounds present in millet grains which reduces oxidative stress.
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**ANTI CANCER** **Anti-cancer properties:** Millet extracts have anti-proliferative effects on cancer cell line, inhibit DNA damage and induce the production of phase-2 detoxifying enzymes.
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**Anti-hypertensive:** Millets prevent the oxidation of low density lipoproteins reducing lipase activity which reduces the occurrence of hypertension.



## Health benefits of Millets contd..



**Obesity:** Intake of high dietary fibre (present in millets), hunger satisfaction and increases satiety decreases incidence of obesity.



**Coronary Heart Disease (CHD):** Regular consumption of whole millet grains (40 g/day) reduces the risk of CVD and thus reduces the risk of CHD by 20%.



**Beneficial in treating stomach ulcers and gall stones:** Millet consumption turns the stomach alkaline and prevents the formation of stomach ulcers or reduces the effect of ulcers.



**For Anemia control:** Finger millet is a very good source of natural Iron. Its consumption helps in conditions of anemia. It helps in keeping malnutrition, degenerative diseases, liver disorders and asthma at bay.



**Beneficial in preventing allergic reactions:** Pearl millet especially has a very low probability of causing allergic reactions, due to the hypo-allergic property;

### Traditional Indian foods

- Breakfast foods- Dosa, idli, poha
- Meals- Roti, Sankati, porridge, etc.
- Snacks- muruku, laddu, etc.



### Ready to cook

Semolina, pasta, rawa, multi-grain atta, etc.



### Ready to eat

Snacks- extruded products, puffs, biscuits, bakery products



### 3. Promotion of Organic Farming by Centre for Agri Business Management



Bhubaneswar, Nov 24: For 43-year-old Santosh Behera, a resident of Kamagara Patana, a small village under Kamakhyanager block in Dhenkanal district, shifting from conventional farming to organic way is quite satisfying. Behera was all smiles as he displayed his first organic harvest – a basketful of indigenous variety of brinjal, locally called “Pala Baigana,” in a National Seminar on Natural Farming & Food Safety organised in the city recently.

In his childhood, Behera has seen his father and grandfather following organic practices. However, when he took up the task of farming around two decades ago, he started using chemical fertilizers and pesticides as everyone around him advised him to do so to get a good harvest.

“The practice of applying chemical fertilizer went on till I was motivated by the student-volunteers of the Centre for Agri-management, Utkal University with the support of the Asian Institute of Human Development (AIHD), a Bhubaneswar-based organisation, to return to the organic way of cultivation. Since Akshaya Tiritiya, on May 3 this year, I have shunned chemical fertilizer,” said an enthusiastic Behera.

“To my surprise, the harvest from organic practices is at par with that of the chemical way. What is more satisfying is that I can protect my family and neighbors from deadly diseases that mostly occur due to the consumption of food produced in a chemical way. Besides, by doing this I am contributing to a healthy environment.” he added further.

“It is only a few months Behera has adopted the organic way of cultivation. The soil will become fertile with constant practice of organic farming and the harvest will multiply in course of time,” said Deepak Ram, who manages Organic Farming projects.

Chief Guest of the programme, Prof. Pravat Kumar Roul, who is the Vice Chancellor of OUAT, visited CAM’s stall that was displaying a range of organic produce and inputs including fertilizers, pesticides and waste decomposer. While taking a note from the farmers and CAM’s community motivators about the methods of preparation and application of these farming inputs, Prof. Roul urged them to inspire other farmers to adopt the practice as it can only make their livelihood sustainable.

Among others, Dr Ashok Kumar Mahapatra, Vice Chancellor of Siksha O Anusandhan University; Dr. Nagesh Kumar Barik, Scientist, Central Institute of Freshwater Aquaculture-Bhubaneswar; and leaders of different Farmer Producer Organisations (FPOs) visited the AIHD stall and lauded its efforts to make earth a better place to live in by promoting sustainable agricultural practices.

Mohini Mohan Mishra, General Secretary of Bharatiya Kishan Sangha; Dr. Gagnesh Sharma, Director of National Centre for Organic and Natural Farming, Ghaziabad; Sukant Kumar Panigrahi, Executive Secretary of ANANYA, a non-profit; and experts from across the country discussed on the strategies to mainstream organic and natural farming. More than 600 farmers, organic entrepreneurs, experts, and scientists from across the country participated in the programme.

It may be mentioned here that CAM engaged in a slew of activities including education, entrepreneurship development, and promotion of sustainable agriculture and livelihood in the state. Currently, it is promoting adoption and certification of organic farming in five districts – Deogarh, Gajapati, Keonjhar, Dhenkanal and Kandhamal through AIHD.

Adoption & Certification of Organic Farming Under NHM (MIDH) in Keonjhar	
Project Title	Adoption & Certification of Organic Farming under NHM (MIDH) in Keonjhar district
Status	Ongoing
Project Implemented by	CAM & AIHD
Duration	2019-22, 2020-23
Area	400 ha
Dist	Keonjhar
Intervention blocks	Jhumpura (100 ha) & Sadar (300 ha)
Villages	Jhumpura block: Asuria and Asanpat village Sadar block: Raikala, Kandrakala, Baneikala and Sandiapashi under Raikala panchayat; Khaparakhai, Tiadipashi, Murusuaa, Hundula and Mangalapashi under Palaspanga panchayat; Nuagaon, Hatikucha, Narsingpur, Birakishorpur and Kadagad under Nuagaon panchayat
Number of Beneficiaries	900

Adoption & Certification of Organic Farming Under NHM (MIDH) in Kandhamal		
Project Title	Adoption & Certification of Organic Farming Under NHM (MIDH) in Kandhamal	
Status	Ongoing	
Project Implemented by	CAM & AIHD	
Duration	2021-24	
Area	200 ha	
Dist	Kandhamal	
Intervention blocks	Daringbadi	
Villages	Tamangi, Kumbharipadara, Kasabasa, Alajul, Bujuli, Saramuli, Pakalma, Bangama, Adipada, Kirama, Kutularigaon, Kadmbha, Brahmanigaon, Nuagaon, Kinarika, Saragudi, Kambharigaon	
Number of Beneficiaries	500	

Adoption & Certification of Organic Farming Under NHM (MIDH) in Dhenkanal

Project Title	Adoption & Certification of Organic Farming under NHM (MIDH) in Dhenkanal
Status	Ongoing
Project Implemented by	CAM & AIHD
Duration	2021-24
Area	200 ha
Dist	Dhenkanal
Intervention blocks	Kamakhyanagar & Sadar
Villages	Kamakhyanagar block: Jhagadapada, Kanapala, Godabhangasogar, Kamagara Patana and Kusumjodi Sadar block: Nagiapasi, Harekrushanpur and Arda.
Number of Beneficiaries	420

Adoption & Certification of Organic Farming under NHM (MIDH) in Gajapati

## Utkal University, Vani Vihar

Project Title	Adoption & Certification of Organic Farming under NHM (MIDH) in Gajapati
Status	Ongoing
Project Implemented by	CAM & AIHD
Duration	2020-23
Area	550 ha
Dist	Gajapati
Intervention blocks	Gumma (250 ha) & Nuagada (300 ha)
Villages	Gumma block: Tarava, Samgaita, Buruding, Linga, Patimul, Patimul colony, Badakalakote, Padurusing, Sukei, Sindiba, Rungrungba, Boseising, Kingda Nuagada block: Jong Jong, Ghodakona, Paikanttarda, Luhangar, Souri, Janapada
Number of Beneficiaries	1000



Organic Kitchen Gardening & Home Composting Workshop

More and more people living in urban cities are embracing and adopting an organic lifestyle and produces without harmful chemicals and preservatives. Terms like urban farming, hydroponics and organic veggies are gaining popularity in the cities. A lush green balcony, where you can grow your own vegetable and fruits, pluck them and enjoy your own produce.

Well, if you've not yet started your own garden or are worried about not having enough space, head to the organic kitchen gardening and composting workshop. Here you'll be taught how to kick-start your own dream garden within your residential spaces - balcony, terrace, and window grill or backyard. Expect a bit of both - theory and practical knowledge. You'll learn about the basics of soil ecology, making a live soil pot, sowing seeds, mulching, DIY drip irrigation methods, home-made pest remedies, health and maintenance of your plants and kitchen waste composting.



#### The Venue

The workshop will be held in the Rural Technology Park, which is an organic farm on the Utkal University campus, Bhubaneswar. This started in 2016 with the objective of converting a piece of barren land into a usable one and making it a sustainable organic food garden. All the contribution from this workshop is used for the maintenance of their farm and to fulfill their social project.

#### Tip

- Practice outdoor activities
- Your hands must be dirty.
- We'd advise you to put on your old pair of clothes for this workshop.
- Training programme on Organic Farming in Horticultural Crops on 15th September 2022

#### **Training programme on Organic Farming in Horticultural Crops was conducted at Champua, Keonjhar.**

The importance of biofertilizers in horticulture crops and production practices in seasonal vegetables information was disseminated to participants. 16 farmers have participated in the program.



Centre for Agri-Management organised field trip to educate the students on the advantages of pesticide-free farming and workshop on organic farming for students. The workshop was held on Sunday as part of series of programmes being conducted by the centre for the past 2 weeks for students

The teachers, who accompanied the students, explained to them about the benefits of organic farming. Organic farming is friendlier to the environment, besides yielding higher returns to farmers. The students evinced keen interest on various types of crops, such as tomato, brinjal, cucumber, cabbage, carrot, methi, papaya, etc., which are grown using organic manures, and enquired the farmers about various the methods like drip irrigation they adopted

The students were also told that organically-grown products contain more nutrients like calcium, iron, magnesium, and zinc. Organic farming would reduce soil erosion, and prevent pollution of water sources, besides protecting bio-diversity, the students were told.

One of the unique features of CAM is that it advocates absolute need of organic farming and really seems to understand its sustainability. Students are involved in agricultural activities in collaboration with local farmers with the aim of eliminating pesticide-laden vegetables. The students under the guidance of skillful faculty initiated Organic Farming by supporting the farmers economically. Students visit nearby organic farms to understand and implement the techniques that are included in organic farming.





Organic food is not prepared using chemical fertilizers. It does not contain any traces of chemicals and thus does not affect the human body in negative ways. This apart, organic food is tastier than conventional food and they are usually directly picked from farms and are fresh. CAM, who also practices organic farming, added that as harmful chemicals are not used in organic farming, there is minimal soil, air, and water pollution. Thus it ensures environmental safety and a safer and healthier world for future generations to live in. Organic foods help to prevent major and minor diseases and illnesses and thus lower healthcare costs. It gives more nutrients and thus keeps the body fit and healthy.



There is such a rising interest in organic food and organic farming that people are even ready to pay a higher price for organic products. Organic farming is a model of food production that does not involve any chemicals and synthetic Fertilizers. At its core is the preservation of the quality of soil, water, and ecosystem. One main attribute of organic farming is its adoption of sustainable agricultural practices – food production without compromising the ecology, environment, and natural resources. The practice relies solely on organic means to grow food, prevent disease, and fight off pest attacks. Sustainability and improved environmental quality are also a major focus of it.

### **Health Benefits of Organic Farming**

Undeniably the most crucial factor in the popularity of organic farming is its numerous health benefits. Organic produce is free from harmful chemicals and pesticides and therefore poses no health risk.

Besides, depending solely on organic ways to produce crops also preserves the nutrients that are otherwise lost to favoring quantity over quality in conventional farming. Nutrition-rich organic food is extremely beneficial for human health. Numerous studies have also established the better quality of organic food over conventional products.

### **Benefits of Organic Farming on The Environment**

At a time when ecological concerns are mounting, organic farming presents a viable option to preserve the ecology and environment. One main attribute of organic farming is the system of crop rotation.

This practice helps prevent nitrogen losses to the atmosphere, preserving the quality of air. Moreover, it also lessens the release of harmful gases like methane, nitrous oxide, and carbon-di-oxide responsible for global warming.

FOA also agrees that organic farming could significantly prevent global warming and environmental decline

### **Organic Farming Promotes Soil Health**

At the core of organic farming is the production methods that do not rely on chemical inputs to increase yield. Harmful chemicals drastically reduce the quality of the soil.

By cutting the use of chemicals, organic farming aids to improve the overall health of the soil. Organic fertilizers not only improve the water retention quality of the soil it also increase the natural fertility of the soil.

Moreover, crop rotation practice further aids the replenishment of nutrients in the soil and helps prevent land degradation.

### **Organic Farming Promotes Biodiversity**

One of the essential components of healthy crop production is respecting the biodiversity of the related ecosystems. Besides, bacteria and microorganisms help in better food production.

However, with its excessive use of chemicals, conventional farming destroys the biodiversity of soil and water. In time, the soil loses all of its beneficial microorganisms and becomes unfit for crop production.

On the other hand, organic farming limits the use of chemicals and, therefore, significantly boosts soil quality, enhancing biodiversity. Besides, organic farming involves crop rotation – a practice known as polyculture. This technique conserves a variety of helpful insects and microorganisms in the soil.

### **Organic Farming Promotes Sustainability**

Sustainability is defined as a way of utilizing the resources available to us in a way that does not drastically deplete them. It aims to preserve the environment and ecology, keeping in mind the future generations.

In this regard, organic farming is completely synonymous with sustainable development. Organic food production respects the land, the water, and ecology and does not overburden them to extract higher profits and yield.

Moreover, it aims to create a balance with nature, applying techniques that significantly improve the quality of connected ecosystems like soil, water, and air.

### **Social Benefits of Organic Farming**

Organic farming has opened several job avenues on various levels of crop production. Incidentally, the exponential growth of the organic market has also led to a significant increase in the number of jobs.

Besides, it's more about quality of work than job creation. Less exposure to harmful chemicals means better working conditions for the laborers on-farm and healthy living conditions for the livestock. Therefore, the quality of life of laborers and farmers, as well as the livestock present on the farm, also improves after switching to organic farming.

### **Conclusion**

Natural resources are depleting at an alarming rate. Water bodies are shrinking, soil quality is degrading, and the air becomes poisonous day by day. On top of that, there is a mounting challenge of global warming that has a negative impact on every aspect of life on Earth. It's high time to adopt ways that could prevent the deteriorating state of our planet



**Rural Technology Park (Living Lab.)** was established under RUSA-2.0 on the university campus to disseminate new methods and technologies to farmers in rural areas and encourage agribusiness management students to become rural entrepreneurs.

The student-run park provides a platform and ample opportunities for school and college students, farmers, entrepreneurs, and faculty members to showcase their live projects and business models related to sustainable rural enterprises.

It is an experimental platform in the University campus for live projects, where our students and teachers apply their learning/ ideas for innovation and knowledge generation. The good old saying “Seeing is Believing” is put into practice. Rural Technology Park focuses on Agribusiness and transforms them into successful business models. The RTP guides students, aspiring agri-entrepreneurs, SHG members, farmers to develop profitable agribusiness enterprises involving Nursery, Mushroom cultivation, Duck-Fish integrated farming, Natural farming, vermin compost, bio compost, bee keeping, protective farming, urban farming and etc. The entire farming is organic based.