

# Small Millets and Markets : Challenges and Oppertunities



E.D.Israel Oliver King  
M.S.Swaminathan Research Foundation  
[oliverking@mssrf.res.in](mailto:oliverking@mssrf.res.in)





# CLIMATE SMART NUTRITIOUS MILLETS



+ indicates the drought hardiness



# 7 C Holistic Approach in Millet Conservation and Sustainable Use

Science based Participatory Research

**Conservation**

**Chronicling**

**Cultivation**

Building  
Grassroots

**Commerce**

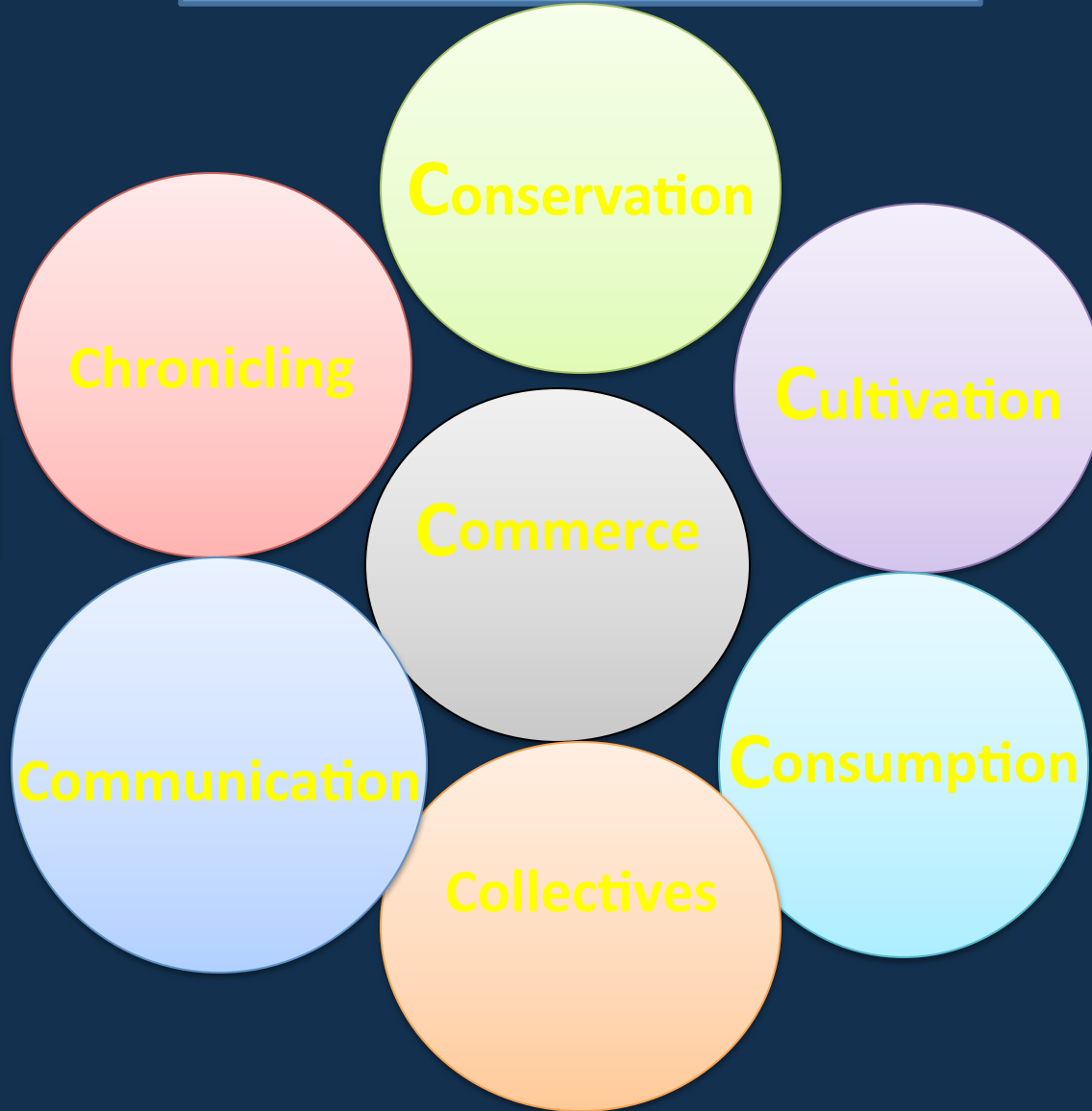
Enhancing  
Capacity

**Communication**

**Consumption**

**Collectives**

Ensuring Resilience





# Gender division of role in Kodo millet farming

Activity	Men	Wo men	Both
Land preparation	✓		
Ploughing & Cleaning	✓		✓
Sowing	✓		
Weeding		✓	
Harvesting			✓
Bounding in small			✓
Bounding larger			✓
Transporting			✓
Storing at one place	✓		
Cutting		✓	
Threshing			✓
Grading & Winnowing	✓		
Market information gathering			✓
Smaller sales			✓
Bigger sales	✓		
Seeds saving		✓	
Processing		✓	
Storages			✓



- **Traditional processing equipments ;** Jathaa (it is a traditional grinder that made out of mud), sakki (it is traditional grinder that made out of stone)



# Gender division of role in Little Millet farming

Activity	Men	Women	Both
Land preparation			
Weeding			
Harvesting			✓
Bundling	✓		
Transporting bundles			✓
Collecting bundles in one place			✓
Bundles opening			✓
Winnowing	✓		
Saving seeds		✓	
Processing		✓	



Okkiri  
(or)  
Musar  
(it is  
poundi  
ng  
stick);

- **storage systems for grain and seeds;** Koti (made out of straw and mud), Khudusa (made out of bamboo)



# Range of dehulling machines



Ball mill -45-50%



Dehusker with Hopper 68-70%



Husker and Polisher 65%



Perfura CIAE model of Stone Machine 77-82%



Double Hopper and Single Sheller 82-85%





**Radhe Syam Chawla  
Hehuller in Mandla**



**Lakshmi bai mill in Kodopani  
village of Mandla**



**Millet processing  
Mill in Kanari village  
of Dindori district**





# Value addition training for women and youth



Building capacities on Culinary Knowledge  
(Processing, Cooking and Consumption)  
in Millets and value addition



# KOLLI HILLS TRADITIONAL RECIPES OF SAMAI (Little Millet) & THINAI (Italian Millet)

							
Samai Rice	Thinai Rice	Samai Uppuza	Thinai Uppuza	Samai Panna Kozhukku	Samai Kaa Kozhukku	Thinai Panna Kozhukku	Thinai Kaa Kozhukku
							
Samai Sawa Puvu	Thinai Sawa Puvu	Samai Sawa Pappal	Thinai Sawa Pappal	Samai Sawa Mappasa	Savu Thinai Kuzhidiyagaru	Thinai Sawa Mappasa	Savu Thinai Sawa Puvuru
							
Samai Kaa Pappasa	Thinai Kaa Pappasa	Samai Pappasa	Thinai Pappasa	Samai Mli	Thinai Mli	Samai Dasa	Thinai Dasa
							
Samai Wheat Flour Dasa	Thinai Wheat Flour Dasa	Samai Kaa Pappal	Thinai Kaa Pappal	Samai Thinai Kaa Puvu	Samai Saada	Samai Pabada	Thinai Saada
							
Thinai Pabada	Thinai Kibbaa Pabada	Samai Thinai Chappadi	Samai Thinai Ada	Samai Thinai Vada	Samai Thinai Murukku	Thinai Adhirasa	Samai Thinai Kachayam



# Millet based Nutrition literacy for School kids



## Millets Food Fair, Seed Fair, School Competition





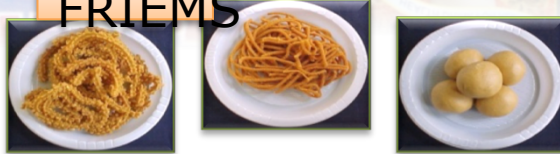
# Millet Product Development, Branding, labeling



<b>Value Added Products</b>
Finger Millet Malt (Ragi Malt)
Thinai Payasa Mix
Thinai Laddu
Samai Bajji Mix
Samai Uppuma Mix
Samai Rava Dosa Mix
Little Millet rice
Italian Millet rice
Finger Millet Flour

Baked,  
Puffed &  
Fried.....  
Neutraceutical Mixes

FRIEMS



BUNS



BAKED COOKIES

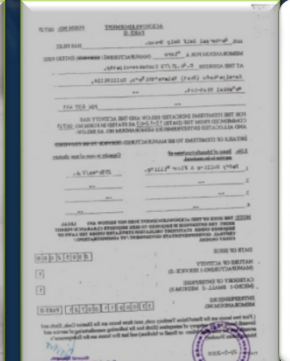
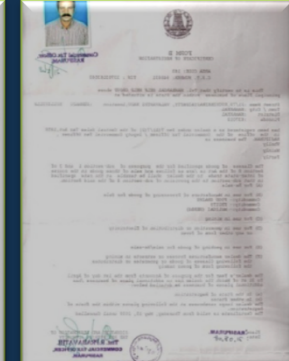
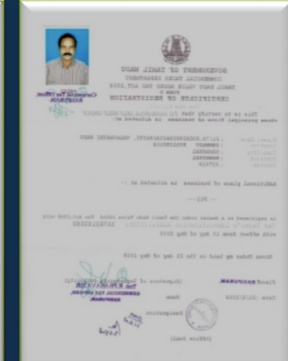
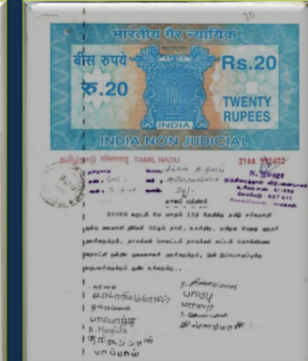
DIABETIC MIX





# Community Based Infrastruture: Decentralised Rural Processing Units at Millet Growing Blocks run by FPOs and NGOs

- Partnership deed in SHG
- MOU with the Block development Office
- Tax Payer's Identification Number certificate (TIN)
- Sales Tax Certificate (CTC)
- Small Scale industry certificate (SSI)
- Tamil Nadu Food Safety and Drug Administration Certificate



Sales Deed

Dhan Settlement

Partnership Deed

TIN Cert

Sales Tax Cert.

SSI Cert.

FSSAI



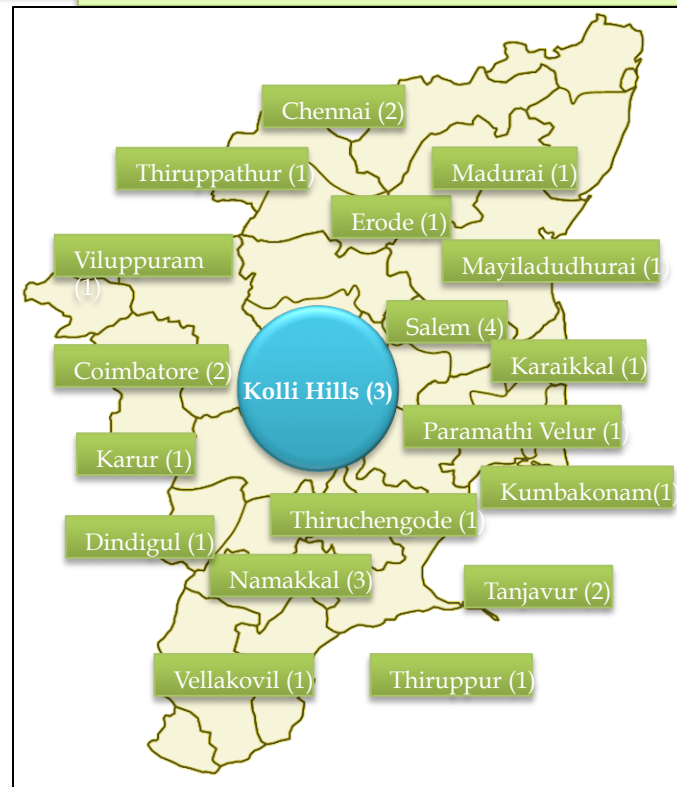
# Inclusive Millet Value Chain Development

Linkages of products to Health foods shops and organic outlets

Producer – Procurer - processor – Value adder  
– Distributor - Consumer

Quantity of different form of millets Marketed 2001 - 2016

Year	Whole Grain (Kg)	Millet Rava and Flour (Kg)	Value Added Products (Kg)	Gross Returns (Rs)
2001-2002	9000	1200		62,000
2002-2003		2662		70,068
2003-2004		1365		25,524
2004-2005		3138		71,500
2005-2006		2255	1110	1,16,098
2006-2007		1062	240	50,598
2007-2008		1770	414.45	73,694
2008-2009		2672	831	1,29,639
2009-2010		1465	1061	1,25,853
2010-2011		681	984	1,32,893
2011-2012		1373	1119.75	2,42,422
2012-2013		3658	1660.2	4,20,054
2013-2014		5486.5	1497.85	5,49,908
2014-2015		9548.5	1696.65	9,31,580
2015-2016		15,081	1179.65	13,12,855
<b>Total</b>	<b>9000</b>	<b>53417</b>	<b>11794.55</b>	<b>4314686</b>



Kolli Hills Natural Food Shop

Managed by the KHABCOFED

Collectives of the Members of the federation

Function as a Hub in the supply chain of the Kolli Hills products



# Price Spread/margin of Millet Rice and Flours in Kolli Hills (Rs./Kg)

Sl. No	Particulars	Little Millet Rice	Foxtail Millet Rice	Little Millet Flour	Foxtail Millet Flour
1	Grain cost (Farmers)	50.00	42.86	50.85	43.48
2	Travel cost from farm gate to Processing center	1.67	1.43	1.69	1.45
3	Cost of De-husking/grinding (Processing groups)	11.67	10.00	18.98	17.25
4	Labour cost for packing (Value addition group)	1.67	1.43	1.69	2.90
5	Cost of packing materials (Value addtion group)	6.00	6.00	6.00	6.00
6	Others expenses (Electricity carges & Building Rent )	0.83	0.71	0.85	0.72
7	Transport from Kolli Hills to Namakkal (Distributor point)	1.67	1.43	1.69	1.45
8	Commission of Distributor	10.00	10.00	10.00	10.00
9	Commission of Retailer	10.00	10.00	10.00	10.00
10	<b>Total Production Cost</b>	<b>93.51</b>	<b>83.86</b>	<b>101.75</b>	<b>93.25</b>
11	<b>MRP (Consumer end)</b>	<b>100.00</b>	<b>100.00</b>	<b>110.00</b>	<b>110.00</b>
12	<b><i>Profit of Value addition group</i></b>	<b>6.49</b>	<b>16.14</b>	<b>8.25</b>	<b>16.75</b>



# Price Spread/margin of Millet Value Added Products in Kolli Hills (Rs./Kg)

Sl.No	Particulars	Samai Uppma Mix	Samai Biji Mix	Samai Dhosa Mix	Thinai payasam Mix	Thinai Laddu	Ragi Malt	Ragi Murukku
1	Grain cost (Farmers)	43.80	33.71	26.09	20.00	18.25	27.78	12.50
2	Travel cost from farm gate to Processing center	1.46	1.12	0.87	0.67	0.61	0.93	0.67
3	Cost of De-husking/grinding (Processing groups)	10.22	12.58	9.74	4.67	8.82	16.26	0.00
4	Other Ingredients (Value addition group)	24.27	33.03	28.31	33.44	110.85	30.37	69.00
5	Labour cost for /Value addition & packing (Value addition group)	4.38	3.37	3.48	5.33	18.25	12.96	75.00
6	Cost of packing materials (Value addtion group)	12.00	12.00	12.00	12.00	1.10	8.00	49.50
7	Others expenses (Electricity charges & gas/ kerosene )	1.46	1.12	0.87	0.67	1.83	3.70	32.50
8	transport from Kolli Hills to Namakkal (Distributor point)	1.46	1.12	0.87	0.67	16.67	0.93	10.00
9	Commission of Distributor	20.00	20.00	20.00	20.00	25.00	10.00	20.00
10	Commission of Retailer	20.00	20.00	20.00	20.00	25.00	10.00	30.00
11	<b>Total production cost</b>	<b>139.05</b>	<b>138.05</b>	<b>122.23</b>	<b>117.44</b>	<b>226.38</b>	<b>120.93</b>	<b>299.17</b>
12	<b>MRP (Consumer end)</b>	<b>180.00</b>	<b>180.00</b>	<b>180.00</b>	<b>180.00</b>	<b>250.00</b>	<b>130.00</b>	<b>330.00</b>
13	<b>Profit of Value addition group</b>	<b>40.95</b>	<b>41.95</b>	<b>57.77</b>	<b>62.56</b>	<b>23.62</b>	<b>9.07</b>	<b>30.83</b>

# Millet Campaigns across stakeholders



Wall Painting



Folk Theatre



Rural Markets



Road Show



Exhibitions at Various Fora

Awareness-raising and marketing campaigns effective in increasing use of millets





# Engaging Youth, Panchayat Raj Institutions, State departments





# Joint forum for Scientists, Administrators and Policy makers





# Millet supply/ Value chain pattern

- Farmers → Local procurers → Organic shops → Millet Store, Re Store, Allmaa 100, Valam, Bio Organic
- Own Farm → Organic shops → Jay CEE Greens, Amirtham, F5 Stores
- Own farm → Packed Products → Own shop → Commission Agencies → Other Shops → Eco Care
- Origin diversified source → Organic shops → Consumers → Many Products and Whole Grain
- Own Farm → whole sale vendor → Sriramulu, Jawadi hills
- Farmers → Local procurers → Commission Agency → Whole Sale shops → provision Stores → Dept stores

# Millets species, Market Sectors and consumer segment

Push cart vendors	Wet Flour Vendors	Restaurant	Organic Shop	Whole Sale	Star type Hotel
Pearl millet	Finger millet	Finger millet	Finger millet	Finger millet	Finger millet
Shurghum		Pearl millet	Pearl millet	Pearl millet	Italian Millet
Finger miller		Barnyard millet	Barnyard millet	Barnyard millet	
		Italian Millet	Italian Millet	Italian Millet	
		Kodo millet	Kodo millet	Kodo millet	
		Sorghum	Sorghum	Sorghum	
Middle and Lower middle class	Families Middle and Lower middle class	Middle and Upper middle class	Upper middle class and Elite	Dealers and Local Vendors, Agencies, Commission Agents	Elite



# Legal and financial support for private initiatives



Support by  
Technology Development Board, Govt. of India  
Incubatee of  
PSG Science and Technology Entrepreneurial Park  
PSG College of Technology, Coimbatore  
&  
Agri Business Incubator  
Tamil Nadu Agricultural University, Coimbatore

ஜால் கிப்டன்-ன் சிறுதானிய குக்கீஸ்  
வாங்கியதால் நீங்கள் சிறுதானிய விவசாயிகளின்  
வளர்ச்சியில் பங்கிட்டுக் கொள்ளுங்கள்.

**Joule Foods**  
Power your cells

# 2, GCT Nagar, Kasthur Naicken Palayam, Coimbatore - 641 041  
Phone : 0422 - 6555312 - E-mail : joulefoods@gmail.com

சிறுதானிய குக்கீஸ்  
சுவைத்து மகழ்வீர்!

GLUTEN FREE

**UPWAS PARANTHA ATTA**  
UPWAS BHAJANI

**DESI ATTA**

**SORTED WITH CARE**

HOW TO PREPARE UPWAS PARANTHA

STEP 1: Add 100 gms water to 1 cup Upwas Atta...  
STEP 2: Heat 2nd cup water...  
STEP 3: Serve hot with sweet curries.

**NUTRITIONAL VALUES**

Energy (kcal)	367
Carbohydrates (g)	74
Of which Sugar (g)	0
Fat (g)	11
Protein (g)	11

Net Weight 200 g

GLUTEN FREE

**SAMAK ATTA**  
BHADRA / MOBARA / VARAI FLOUR

**DESI ATTA**

**SORTED WITH CARE**

HOW TO PREPARE SAMAK PARANTHA

STEP 1: Heat 1st cup water...  
STEP 2: Add 2nd cup water...  
STEP 3: Heat up... serve hot with sweet curries.

**NUTRITIONAL VALUES**

Energy in (kcal)	367
Carbohydrates (g)	77
Of which Sugar (g)	0
Fat (g)	11
Protein (g)	11

Net Weight 200 g

Made with Nutri Millets & Whole Wheat Flour

**Millet Cookies**  
A Joule Foods Product

வாகு குக்கீஸ் (Kodo Millet)

Benefits of Varagu  
Excellent source of essential minerals and fiber  
Reduces glycemic index and malnutrition  
Good for your joints

100% Veg

Net Weight : 150g  
(When Packed)

FREE FROM ARTIFICIAL COLOR FLAVOR & PRESERVATIVE

Made with Nutri Millets & Whole Wheat Flour

**Millet Cookies**  
A Joule Foods Product

ராசி குக்கீஸ் (Finger Millet)

Benefits of Ragi  
Rich in resistant starch  
Best source of Calcium  
Contains Iron and Thiamine  
Low fat, helps in reducing obesity

100% Veg

Net Weight : 150g  
(When Packed)

FREE FROM ARTIFICIAL COLOR FLAVOR & PRESERVATIVE

Made with Nutri Millets & Whole Wheat Flour

**Millet Cookies**  
A Joule Foods Product

கம்பு குக்கீஸ் (Pearl Millet)

Benefits of Kambu  
Excellent source of protein & fiber  
Rich in vitamins & minerals  
Effective for stomach ulcers and constipation  
Easily digestible and reduces allergies

100% Veg

Net Weight : 150g  
(When Packed)

FREE FROM ARTIFICIAL COLOR FLAVOR & PRESERVATIVE

Made with Nutri Millets & Whole Wheat Flour

**Millet Cookies**  
A Joule Foods Product

சாமு குக்கீஸ் (Little Millet)

Benefits of Samal  
Rich in dietary fiber  
Rich in phytochemicals  
Reduces cholesterol  
Helps to digestion

100% Veg

Net Weight : 150g  
(When Packed)

FREE FROM ARTIFICIAL COLOR FLAVOR & PRESERVATIVE

Made with Nutri Millets & Whole Wheat Flour

**Millet Cookies**  
A Joule Foods Product

குதிரவாலி குக்கீஸ் (Barnyard Millet)

Benefits of Kutiravali  
Rich source of dietary fiber  
Lowers glycemic response  
Rich in minerals and acts as anti-biotic  
Protection from duodenal ulcers

100% Veg

Net Weight : 150g  
(When Packed)

FREE FROM ARTIFICIAL COLOR FLAVOR & PRESERVATIVE



# Emerging Brands in Millets

- Ecocare, 24 Manthra, Mayoora, Sai foods, Little Millets, Jawadi Hills, Pristine, Pro-nature, Nature land, Kavalam

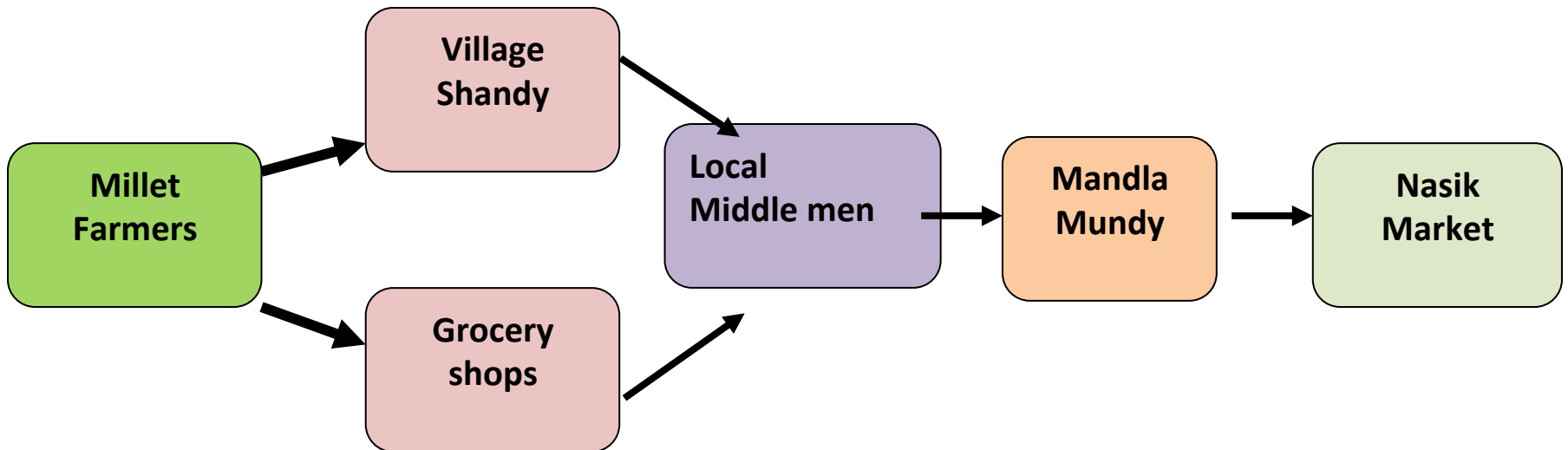
- IMO, EU, USDA

- Average INR 60-70/500 gms





# Conventional supply chain





Sapura Mundy at Dindori district



# Agricultural Produce Marketing Committee, Mandla Town



- The *Rani Dhurkavathi Krishi Udyog Mandali Samiti* is located in the Mandla town.
- The APMC is to regulate millets and other agri produce of the region in terms building relationship between buyer and sellers.
- APMC has track record of transacting kodo millet and little millets to Nasik in Maharashtra and Anand in Gujarat.
- During the year 2016-17 in Mandla APMC; Kodo millet sold @ Rs. 1600 to Rs.1800 / quintal and Rs.2300 to Rs. 2600/ quintal of little millet.
- The price fixation of millets is based on the market trends at Nasik.
- For instance, if one kgs of little millet is Rs. 25 at Nasik, then, Rs.20/kg at Mandla mundy.
- The trader located at Nasik will inform price information to mundy trader, based on that price is fixed on a daily basis during the season.
- Since there is no processing industry established in Mandla or Dindori region, millets grown in this region moves out of the state to Nasik

# Millets Milage !



- 16-18 MT per trip
- Adds on 2-3 Rs per kg
- Kodo millet, little millet from Simle guda of Koraput district in Odisha state to Nasik
- Truck freight from Odisha to Nasik is Rs. 50,000/trip and to Ghoti Rs. 60,000/ trip



# Maharashtra Industrial Development Corporation (MIDC)

- Raw millet like Little millet, Kodo Millet, Barnyard Millet, Foxtail Millet are coming from various state such as Tamil Nadu, Karnataka, Andhra, Odisha, Chattishkar and Madhya Pradesh
- About 21 such bhagar mills are located in Nasik
- Raw millets are coming from various states like Tamil Nadu, Andhra, Karnataka, Madhya Pradesh, Chhattisgarh, Odisha
- Bhagar is consumed in Maharashtra and also in Gujarat and Madhya Pradesh JK enterprise is one of the largest bhagar mills in Nasik and they are selling bhagar in the size of 30 kg bags
- Average retail price of Bhagar Rs. 80-Rs.85 / Kg, Rs. 2500/Quintal)



Chain of Cone Polishers, Sortex Machine, Abarasive processing technology





# Major Brands of Bhagar



Double Dolphin  
Miss World  
Prince  
Sonpari  
Pan Gold  
Anand Mangal  
Cycle Brand Varai  
Bhagal  
Aapki Pasand  
Agraj food Processors  
Bhagirathi  
Swastik  
Hira Moti  
AP enterprises  
Sabu  
Hyper city everyday  
SAM RAT







Species Information, Origin, Composition, Nutrition Information

## Price details of raw millets grains from farmers to Mundy level

Name of millet	Farmer level	Local traders level	Middlemen level	Mundi level
Kodo	Rs.12-Rs.13/kg	Rs.13-Rs.14/kg	Rs.14-Rs.15/kg	Rs.16/kg
Kutki	Rs. 20 – Rs. 21/kg	Rs.22 – Rs. 23 /kg	Rs.23-Rs.24/kg	Rs. 25/kg

## Price details of millets from farmers to processing level

Name of millet	Procurement cost	Processing cost	Recovery in %	Packaging and labelling cost	Whole sale price	MRP
Kodo	Rs. 15/kg	Rs.3/Kg	45 % to 55 %	Rs. 5/kg	Rs. 70/kg	Rs. 85/kg
Kutki	Rs. 22/kg	Rs.3/Kg	45 % to 55 %	Rs. 5/kg	Rs.80/kg	Rs. 95/kg

## Price details of Bhagar during various seasons

Price during Fasting period (August)		Price during rest of the months	
Whole sale price	Retails price	Whole sale price	Retail price
Rs. 80-Rs.85/Kg	Rs.100-Rs.110/kg	Rs. 65/Kg	Rs.75-Rs.80/kg



# Kanha Krishi Vanopaj Producer Company Limited (Kanha KVPC) at Mandla













# Empowering Custodians of Milletdiversity





# Policy Support

- ❑ Building up network of Millet marketing FPCs and Seed exchange networks
- ❑ Small and Medium type Processing facilities at least at cluster level for more domestic consumption (Skill India Training for Youth and women)
- ❑ Research support focus on – local processing and value addition - with the focus on Nutrition, Ant nutrient properties) share with markets
- ❑ Legal and financial support branding and labeling can go a long way in ensuring better returns to the farmers
- ❑ Support millet campaigns involving stakeholder
- ❑ Popularization: targeting local market and local consumer base
- ❑ Linking financial institutions, retailer, wholesalers, regulated markets, APMC, value added product companies
- ❑ Support for diversity based markets development





Thank You



**IFAD**  
Enabling poor rural people  
to overcome poverty

**25**  
**MSSRF**  
Harnessing Science for Sustainable Development



**Bioversity**  
International