

# “ Existing Conservation and Promotional efforts on NUS – Experience from the Field”

*IFAD –EU-CCAFS National Stakeholders meet on “Agro biodiversity to manage risks and empower the poor”*

19-20 June 2015

Action for Social Advancement, Bhopal, India



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09443364287



# Kolli Hills, Eastern Ghats, India





# CLIMATE SMART NUTRITIOUS MILLETS



+ indicates the drought hardiness

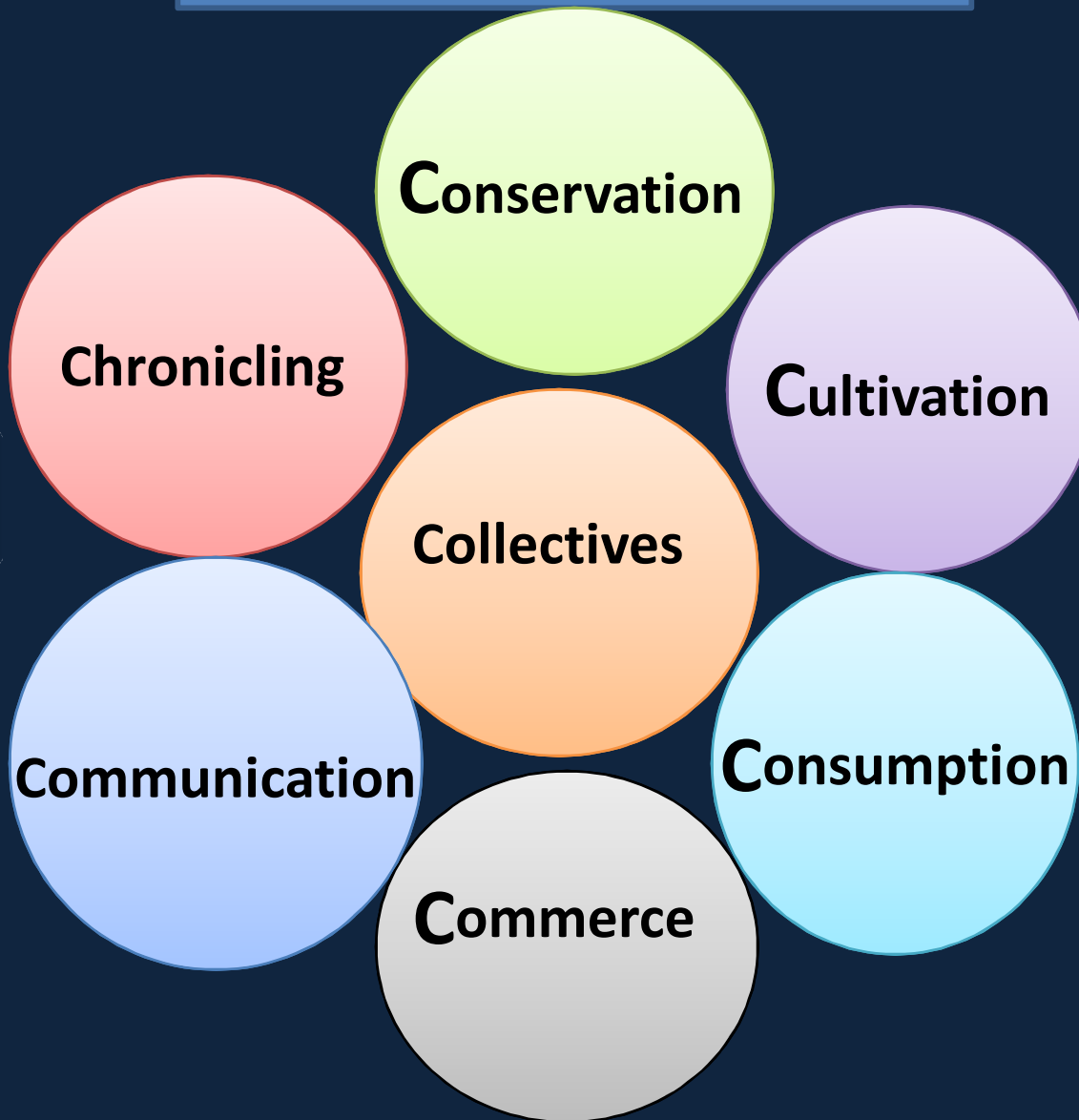
# Key Issues .....

- ❖ lack of suitable improved varieties and improved cultivation practices
- ❖ Poor extension system for crop promotion and yield enhancement
- ❖ lack of specific post-harvest and processing technologies for small users productive assets
- ❖ low economic competitiveness and lack of more attractive and modern food recipes
- ❖ Poorly organized value chains
- ❖ Insufficient awareness of nutritional value and income opportunities
- ❖ Adequate Policy support to promote traditional millet crops



# 7 C Holistic Approach in Millet Conservation and Sustainable Use

Science based Participatory Research



Building  
Grassroots

Enhancing  
Capacity

Ensuring Resilience

# Chronicling



Collection from Custodian farmers



**Millet Interspecies diversity in Kolli Hills**

# Morphometric Characterization of millet landraces

<b>Finger Millet (FM)</b>	<b>Little Millet (LM)</b>
Perungelvaragu	Vellaperumsamai
Sattaikelvaragu	Malliasamai
Karakelvaragu	Kattavettisamai
Karumuliyankelvaragu	Thirigulasamai
Suruttaikelvaragu	Kottapattisamai
Sundangikelvaragu	Perumsamai
Arisikelvaragu	Karumsamai
<b>Italian Millet (IM)</b>	Sadansamai
<b>Name of Seeds</b>	<b>Kodo Millet (KM)</b>
Perunthinai	Thirivaragu
Senthinai	
Palanthinai	<b>Proso Millet (PM)</b>
Koranthinai	
Mookkanthinai	Panivaragu

<b>Traits</b>	
Growth habit	Compactness of inflorescence population
Plant height	Colour of spikelet
Plant	Clour of glume
No of tillers	Clour of apiculus
Culm branching	Spikelet length, mm
Length & Breath of Flag leaf	Spikelet width, mm
Blade pubescence	Days to flower
Sheath length	Clour of seed
Sheath pubescence	Seed weight
Ligules pubescence	Panicle weight ,g
Lodging at maturity	Threshed seed with panicle
Population	
Senescence	Seed tes weight ,g
Inflorescence length	Seedling colur
Peduncle exsertion	Finger number
No of inflorescence	Finger blast %
No of nodes / primary axis	Neck Blast %
No of secondary inflorescence branches	Grain surface
Shape of inflorescence	Grain shape
Population	





# Chronicling Climate Smart Farming Practices

Data base of  
Climate  
Resilient  
Practices;  
Mixed  
Cropping –  
Coping  
Mechanism  
Against  
Natural  
Calamities

Crops, duration and sequence of harvest in  
Conventional mixed cropping in Kolli Hills

Local Name	Scientific Name	Duration (days)	Sequence of Harvest
<i>Amaranthus</i>	<i>Amaranthus sp.</i>	60-70	I
<i>Thinai</i>	<i>Setaria italica</i>	100-110	II
<i>Maize</i>	<i>Zea mays</i>	125-130	III
<i>Ragi</i>	<i>Eleusine coracana</i>	150-160	IV
<i>Cucubits</i>	<i>Cucumber sp.</i>	150	V
<i>Avarai</i>	<i>Purpureus lab lab</i>	190-240	VI

\* Farm level variability exist based on land terrain, Soil, Farmers preferences

# Custodians of Agrobiodiversity Network



❖ Custodians: Conserve, Cultivate, Share, Innovate  
6 Networks formed , 126 farmers profiles documented





# Knowledge, Database and linking with *Exsitu*

M.S.SWAMINATHAN RESEARCH FOUNDATION, CHENNAI

## Scarascia Mugnozza Genetic Resource Centre

Collection Date: **26.04.2013**      Collection No.    **0015**  
 Accession No.    **0015**                      Species Name: **Panicum Sumatrense**  
 Common name:    **Little Millet**              Cultivar/Vernacular Name: **Vellaperumsamai**  
 Regions explored : **Kolli Hills**    Village block: **Alathur Nadu**      Taluk: **Kolli Hills**  
 District:-Namakkal  
 Latitude:-----                      NS longitude:-----                      FW Altitude:-----  
 Source                                      : **Farmers field**  
 Status                                        : **Landrace**  
 Frequency                                : **occasional**  
 Material                                    : **Seed**  
 Sample Type                              : **Population**  
 Habitat                                      : **Cultivated Distributed**  
 Disease Symptom                        : **Nil**  
 Insect, Pest Nematode                  : **Nil**  
 Infection                                  : **Nil**  
 Cultivation Practices                    : **Rain-fed**  
 Season                                      : **Kharif (June second week)**  
 Associate crop(s)                        : **Sole/red gram, mustard, beans, amaranths, other millets**  
 Soil colour                                 : **red laurite**  
 Soil texture                                : **Sandy loam**  
 Stoniness                                 : **Stony/Pulverised**  
 Land Aspect                                : **Up land**  
 Slope                                        : **slope**  
 Topography                                : **Mountainous valley**  
 Agronomic Score                         : **Average**  
 Photograph                                : **Colour**  
 Additional Notes                        : **Drought tolerant**  
 Farmers; Donor's name                 : **Thangalyan**  
 Collector's name                         : **M.N.Sivakumar**  
 Collector's Address                      : **MSSRF, Kolli Hills**  
 Collections given to Gene Bank Manager on



Community Biodiversity Register  
 Local Community Seed Bank  
 Scaracia Mugnosa Community Gene Bank  
 NBPGR National Gene Bank

# Recognizing Custodian Farmers

Village Name: Padosolai, Farmer Name: Mrs. Malliga ,Age:33 No. of Family Member:5



Perunthinai

Perunsamai

Crop	Landrace Name	Traits of the Varieties
Samai/Little Millet	Perunjsamai	Suitable for Mixed Cropping,
Samai / Little Millet	Thirikulasamai	Short duration crop (3 Month), fodder grass, taste, survive in poor soil
Thinai / Italian Millet	Palanthinai	Suitable for mixed crop, Taste, survive in poor soil
Thinai/ Italian Millet	Perunthinai	Suitable for mixed cropping ,
Ragi / Finger Millet	Perungkelvargu	Long duration crop (6Month), fodder,
Ragi/GPU 48	Improved Var.	High Productivity

**Custodian of Climate Smart Nutri-millets: Kollu Hills, Namakkal, Kodukka Malliga Seerajagan** Photo: 07/2013

**Village Background**  
Padosolai village is located in Thirupudai Nadu District in the Kollu Hills of central Tamil Nadu. The village extends to about 1000 mt. at latitude 10° 20'22" N, longitude 78° 27'22" E. Agriculture is the main source of livelihood in the region. A semi-arid climate with annual rainfall of 1200 mm. The hills region covers both southern (Kollu hills) and northern (Namakkal). Most of the traditional food crops are mixed cropping, which is the main source of livelihood in the region. A semi-arid climate with annual rainfall of 1200 mm. The hills region covers both southern (Kollu hills) and northern (Namakkal). Most of the traditional food crops are mixed cropping, which is the main source of livelihood in the region. A semi-arid climate with annual rainfall of 1200 mm. The hills region covers both southern (Kollu hills) and northern (Namakkal). Most of the traditional food crops are mixed cropping, which is the main source of livelihood in the region.

**Introduction**  
Name: Ms. Kodukka Malliga Seerajagan  
Huband: Mr. Easwaran Seerajagan  
Age: 33  
Education: 7th Standard  
Village: Padosolai, Thirupudai, Kollu Hills, Name and: Namakkal, Pin Code: 637 411, Address

**Unique Features**  
Ms. Malliga and her family used to cultivate a greater number of varieties of small millets than most other households in the village. Within her family, she manages the millet diversity and her family is interested in conserving to cultivate these millets on a large scale with different crop patterns based on the market and local conditions. She is a proponent of her family's diversity and during the years has developed considerable knowledge and skills with regard to millet cultivation and seed saving. This has helped her to be a custodian of the millet diversity in her village.

**Support**  
Most of the farm families in her village cultivate ragi. The cultivation has declined not only her family but also other villages to cultivate the cultivation and use of many local types of millets.

**Conclusion**  
Ms. Malliga facilitates the exchange and sharing of ragi millet seeds for her role as the custodian of the local varieties of ragi millet. In addition, she grows and maintains local varieties of ragi millet such as Palanthinai, Perunthinai, Perunjsamai, and Perungkelvargu. She is a proponent of her family's diversity and during the years has developed considerable knowledge and skills with regard to millet cultivation and seed saving. This has helped her to be a custodian of the millet diversity in her village.

**Adaptation**  
Ms. Malliga has developed sufficient knowledge and skills to produce quality seeds. She knows the local cultivation practices of traditional landraces of ragi, finger millet, and rice. She is a proponent of her family's diversity and during the years has developed considerable knowledge and skills with regard to millet cultivation and seed saving. This has helped her to be a custodian of the millet diversity in her village.

**Conclusion**  
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# Conservation

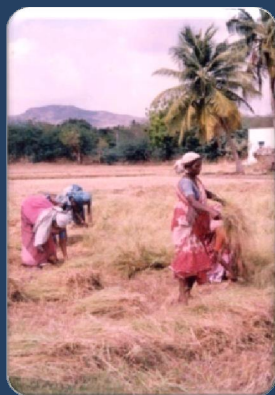
# Community Seed Banks and Networks / VMRCs

On farm issues in Conservation

"Abandoned Traditional Seed storage structures  
"Weakened Seed Exchange practice

Millet*	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
Little Millet	900	1389	453	508	510	95	7.5	16.5	56.5	306	298	176	197	432	271.5
Italian Millet	1089	987	357	435		279			18	55	150	63	81	353	166.4
Finger Millet			227	240		172			112.8	519	232	246	270	562	664
Kodo millet		24				43			.5	20	10	5	10	15	6
Proso Millet						27			.5	11	10	7	15	35	10

Millet seed distribution through Community Seed Banks (in Kg)



Seed Multiplication



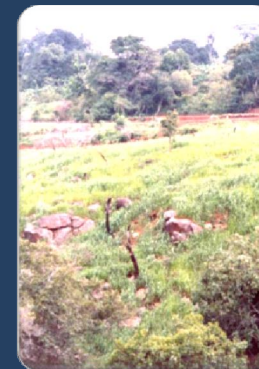
Seed Storage – Thombai



Seed exchange



Seed Distribution



Cultivation



# Cultivation

# Productivity Enhancement (PVS, QSP, Intercropping)

“Farmer participatory research in identifying high yielding varieties through **PVS**

“Yield Enhancement **Demonstrations** for increasing productivity with profitability

“Promotion of **intercrops** for better nutrition

“Reduction of drudgery of women in crop production - row maker, cono weeder, inter cultivation and modified spade

FARMERS' METHOD	IMPROVED METHOD
Traditional seed	Selected quality seed
Broadcasted seed	Row planted seed
Little or no manure & fertilizers	Promote healthy soil management with use of manure & fertilizers
No regulation of plant population	Thinning and seedling density regulation
Weeding or no weeding	Weeding & interculture

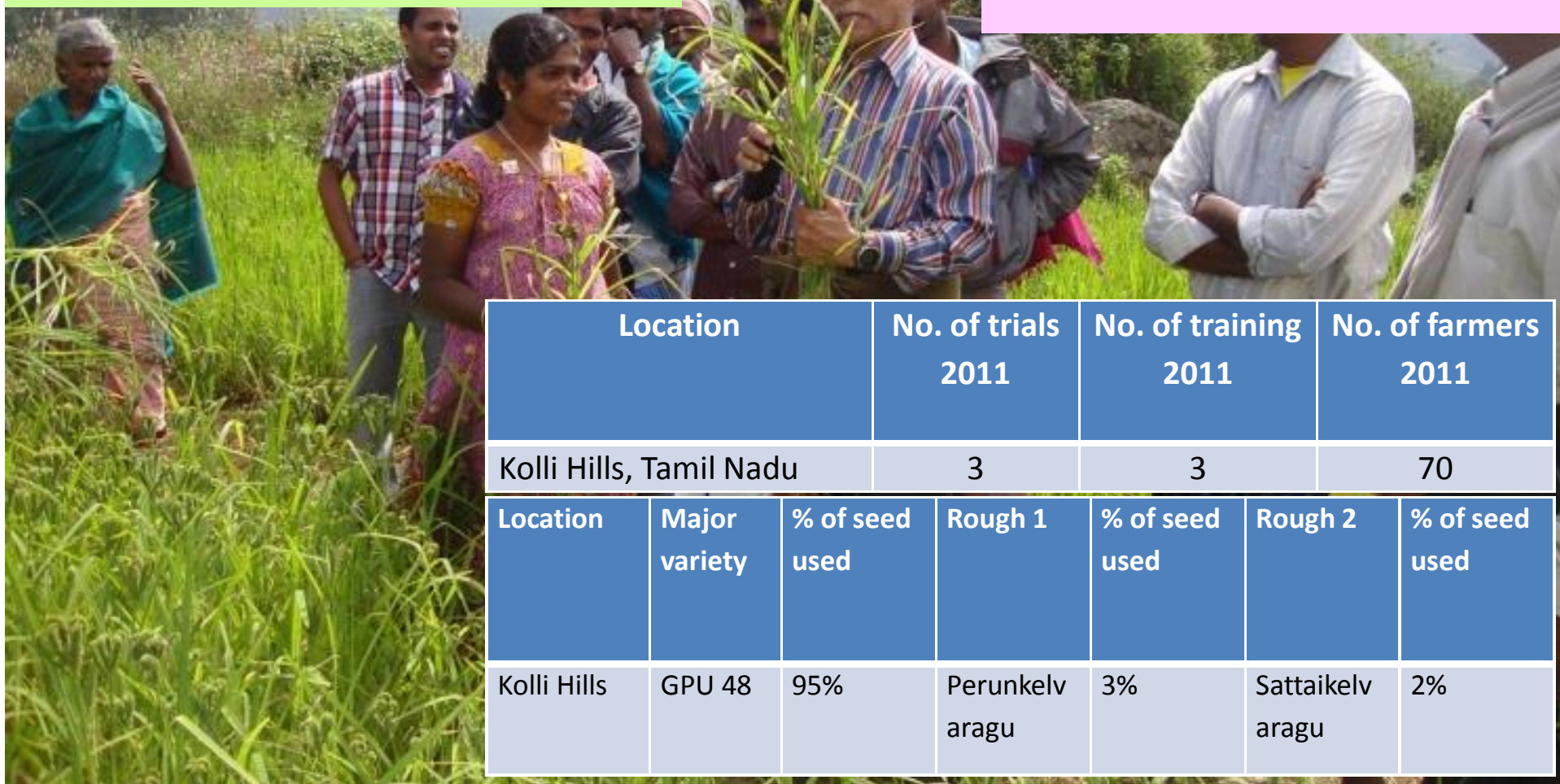




# Farmer Participatory method for Increasing Productivity with Profitability

- “ Availability of Quality seeds in sowing time
- “ Knowledge on quality seed production

- “ Training for production of quality seeds
- “ Knowledge on identification of varietal mixtures



Location		No. of trials 2011	No. of training 2011	No. of farmers 2011		
Kolli Hills, Tamil Nadu		3	3	70		
Location	Major variety	% of seed used	Rough 1	% of seed used	Rough 2	% of seed used
Kolli Hills	GPU 48	95%	Perunkelv aragu	3%	Sattaikelv aragu	2%

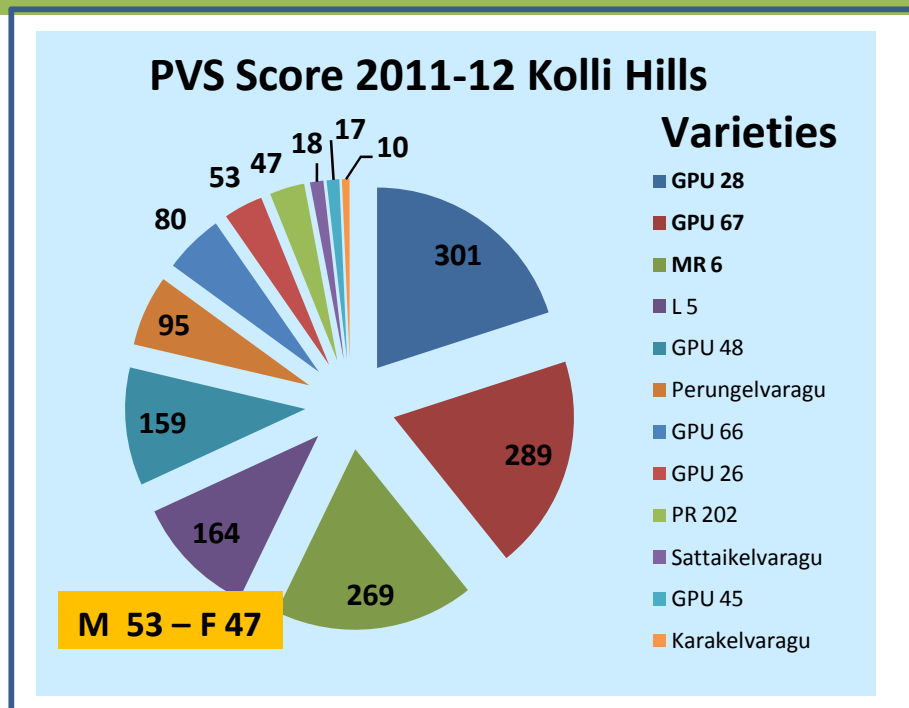
# Farmer participatory research in identifying high yielding varieties

Location	No. of trials (2011-12)	No. of training (2011-12)	No. of farmers (2011-12)
Kolli Hills	4	4	100
Jeypore	4	4	209
Total	8	8	309

Sl.No	Seeds used in Kolli Hills
1	GPU 28
2	GPU 67
3	MR 6
4	L 5
5	GPU 48
6	Perungelvaragu
7	GPU 66
8	GPU 26
9	PR 202
10	Sattaikelvaragu
11	GPU 45
12	Karakelvaragu

“ Limited access improved varieties  
 “ Limited Knowledge on Varietal Selection

“ Capacity building on Varietal selection based on different parameters  
 “ Option for more improved and local varieties suitable to agro ecology





# Farm implements to reduce drudgery of women in on farm work



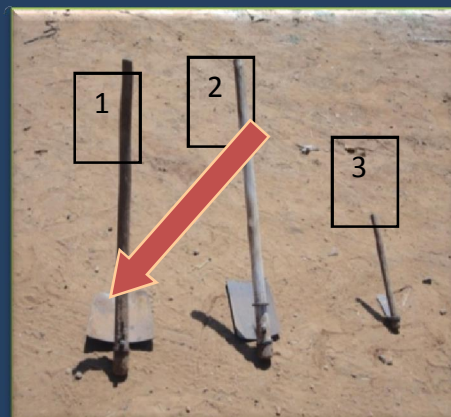
Manually Drawn Six-row marker (1 m long)



Star Weeder

TM	IM
8hr per person X3 = 24 hrs /Acre	1hr per person X2 = 2 hrs /Acre
80% of women time saved	

TM	IM
6hr per person X12= 72 hrs /Acre	6 hr per person X4= 24 hrs /Acre
75% of women time saved	



TM	IM
6hr per person X12= 72 hrs /Acre	6 hr per person X7= 42 hrs /Acre
40% of women time saved	

WEEDING IN TAPIOCA IS DONE BY WOMEN USING WIDE BLADED SPADE (1). MILLET INTERCROP CAUSED PROBLEMS IN WEEDING WITH THE SAME BLADE. THIS PROBLEM SOLVED WITH NEW SPADE NARROW SPECIFICATION (2).

# Consumption



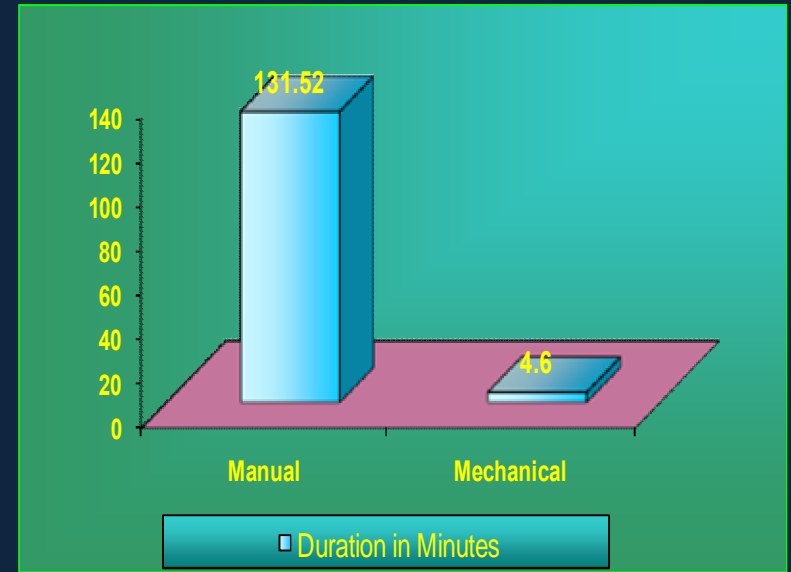
# Implements to reduce drudgery of women in post harvest processing



Manual Pounding



Dehusking mill



Manual Grinding



Mini Pulveriser



Pulveriser

# Research Gap: Dehulling Machines



Ball mill -45-50%

Mc gill Rubber Sheller



Dehusker with Hopper 68-70%



Husker and Polisher 65%



Perfura CIAE model of Stone Machine 77-82%



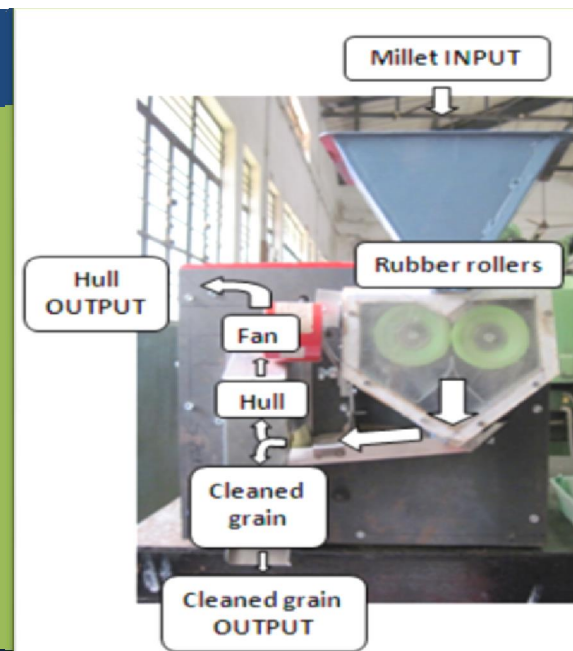
Double Hopper and Single Sheller 82-85%



# New prototype for Little millet - McGill



- “ McGill University in association with MSSRF, UASD
- “ Emery and Centrifugal Technology
- “ Double Pass Process
- “ 95-98 % Milling Efficiency
- “ 100 % Separation
- “ McGill University



## Multi-location Participatory Technology Appraisal

Region	Location	Qty of Grain at Start in Kg	Qty of Grain at End in Kg (Rice)	Qty of Husk mixed with rice in Kg	No of Time Passing	Duration for Dehullin g/ 5kg (hr:m:s)	Starting time of dehullin g (hr:m:s)	Ending time of dehulling (hr:m:s)	E.B reading (kwh)	Opening reading (kwh)	Closing reading (kwh)
Kolli Hills	Puliyampatti	5	4.100	0	8 Times	2:15:17	04:00:00 pm	06:15:17 pm	1	00977(9)	00978 (5)
	Keeraikkadu	5	2.900	1.100	8 Times	2:23:20	10:30:00 am	12:53:20 pm	1	02137(3)	02137(9)
	Chinnamangalam	5	4.275	0	8 Times	1:44:10	2:30:00 pm	04:14:10 pm	1	634(8)	635(4)
	Namakkal	5	4.260	0	8 times	2:21:20	8:30:00 am	10:51:20 am	1	0837(2)	0837(8)

# Value addition Training through Nutrition Science sector



Gap in culinary knowledge in millets

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)

							
Sama Rice	Thinai Rice	Sama Uppuza	Thinai Uppuza	Sama Panna Kozhukku	Sama Kaa Kozhukku	Thinai Panna Kozhukku	Thinai Kaa Kozhukku
							
Sama Swaa Puzi	Thinai Swaa Puzi	Sama Swaa Paagal	Thinai Swaa Paagal	Sama Swaa Mappala	Sama Thiru Kallidaggu	Thinai Swaa Mappala	Sama Thiru Swaa Panyura
							
Sama Kaa Panyura	Thinai Kaa Panyura	Sama Panyura	Thinai Panyura	Sama Mli	Thinai Mli	Sama Dasa	Thinai Dasa
							
Sama Wheat Flour Dasa	Thinai Wheat Flour Dasa	Sama Kaa Paagal	Thinai Kaa Paagal	Sama Thinai Kaa Pau	Sama Saada	Sama Paada	Thinai Saada
							
Thinai Paada Soma	Thinai Kibba Paada	Sama Thinai Chappadi	Sama Thinai Zela	Sama Thinai Vada	Sama Thinai Mulu	Thinai Adhirasa Soma	Thinai Kachayam



# Promoting Nutritional literacy using traditional crops



## Millets Food Fair, Seed Fair, Inter School Competition



**Commerce**



# Diverse Millet Product Development



<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 ..  
Neutraceuti  
cal Mixes

FRIEMS



DIABETIC MIX

BUNS

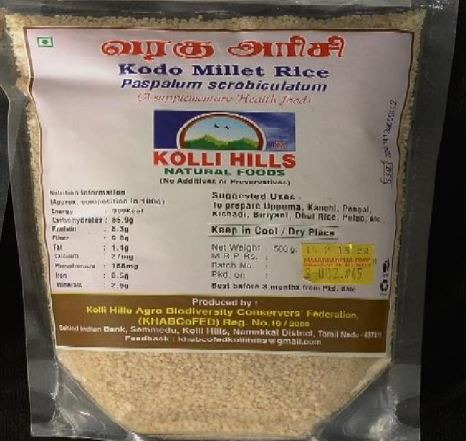
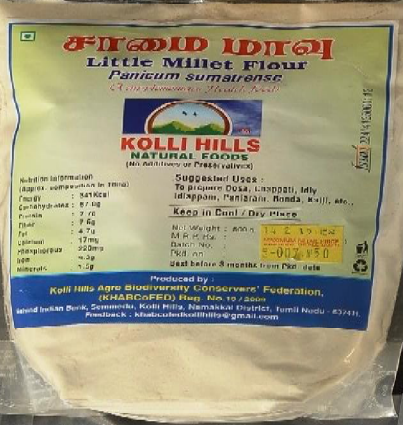


BAKED COOKIES





# PACKAGING





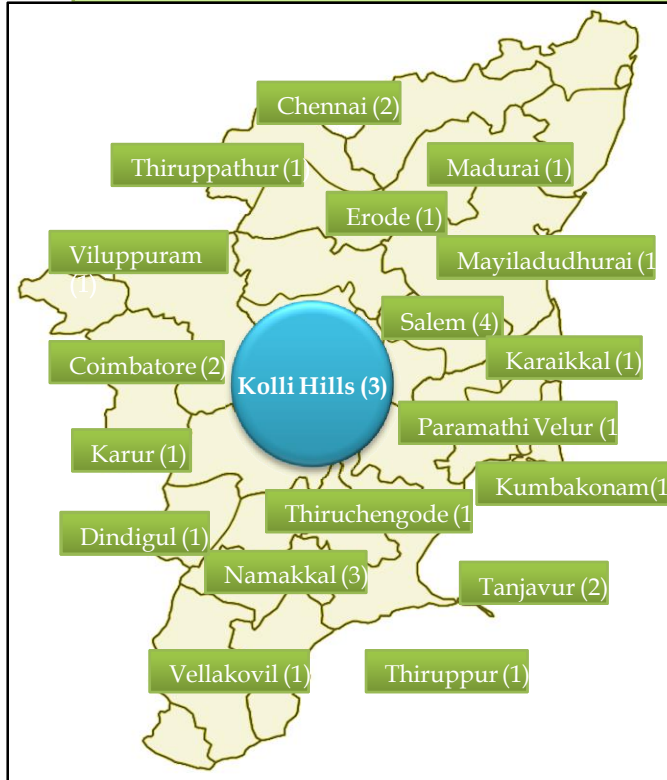
# Millet Value Chain Development

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 - 2012

Year	Whole Grain (Kg)	Little and Italian 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 (December)		5227.5	1405.35	5,50,201
<b>Total</b>	<b>9000</b>	<b>34015</b>	<b>10323.6</b>	<b>26,20,452</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



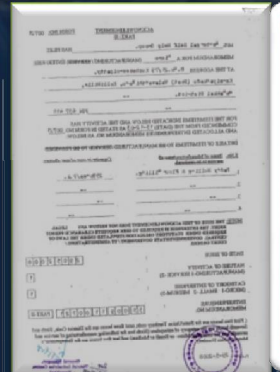
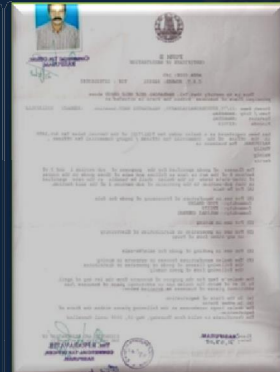
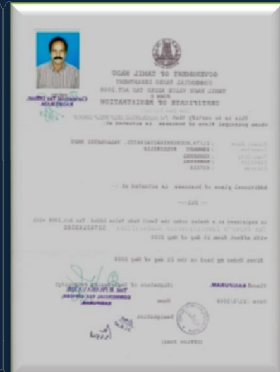
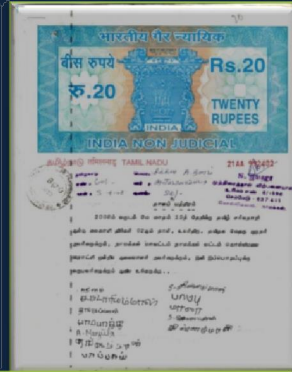
# Collectives



# Community Based Infrastructure creations through Social Capital building

## Creating Common Property

- “ 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

# Village Resource and Knowledge Centers Linked with local Biodiversity and Weather Monitoring Systems





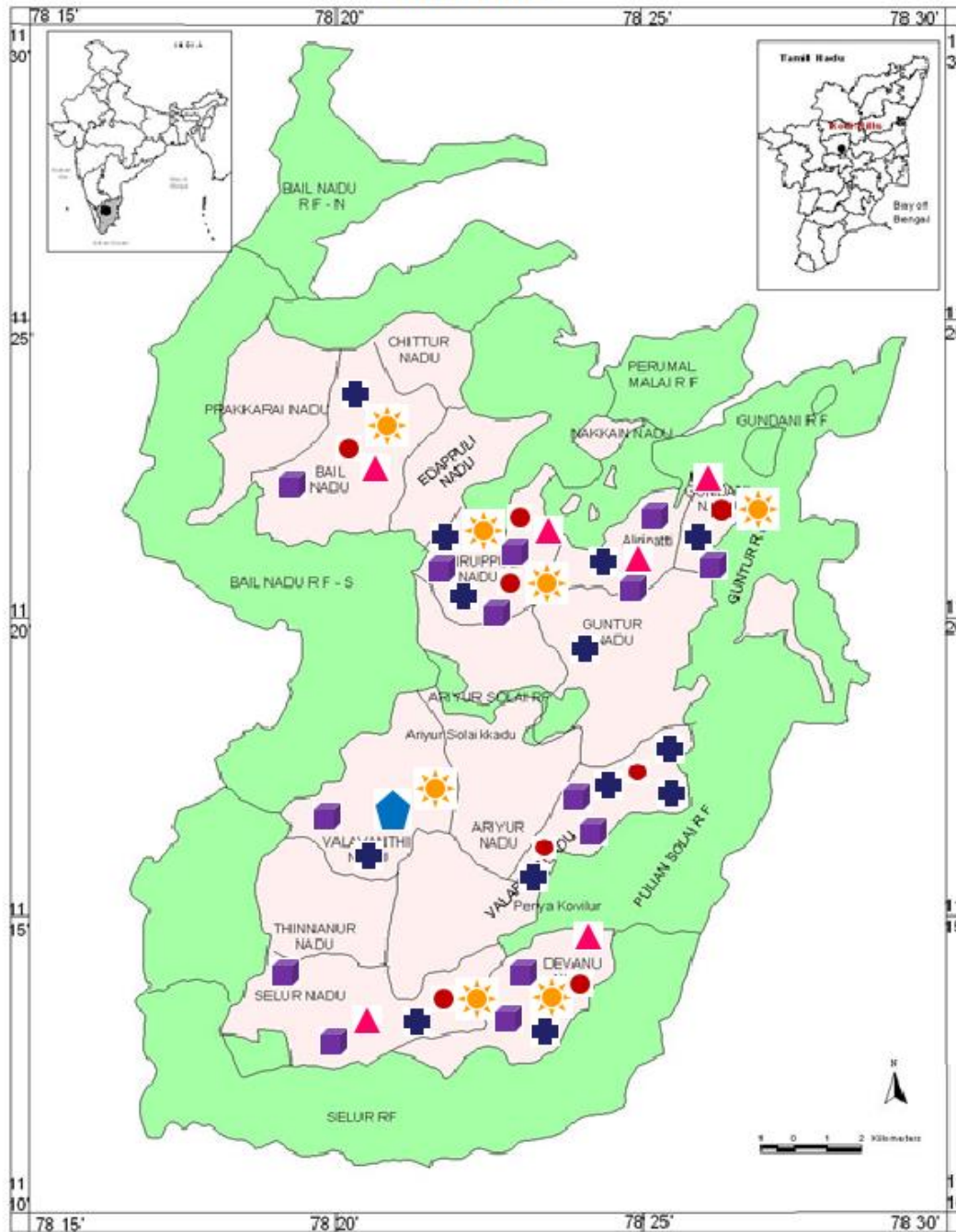
# Community Weather Stations in Kolli Hills



LOCATION	DATE	TIME	TEMP (c)	R.H %	W.S- km/s	W.D(°)	Rain - mm	Solar - W/m2	Battery
VENDAL A PADI	23-1-2015	11:10:00 PM	11.24	98.47	0.00	0.00	0.00	0.00	13.10
NAVAKA DU	17-2-2015	12:10:00 AM	18.06	74.21	0.20	106.56	0.00	0.00	13.20
ARIPALA PATTY	17-2-2015	12:40:00 AM	15.12	89.19	0.00	0.00	0.00	0.00	13.20
PULIYA M PATTI	17-2-2015	12:20:00 AM	19.53	67.52	2.01	145.17	0.00	0.00	13.00
THUVAR APALLAM	7-2-2015	12:30:00 PM	19.00	100.00	2.21	339.46	0.00	152.52	13.60
KEERI KADU	11-12-2014	10:00:00 AM	23.68	90.00	0.40	29.05	0.00	151.72	13.90
SEMME DU	15-2-2015	10:25:00 AM	0.00	0.00	1.80	345.00	0.00	0.00	13.90

[www.weatherdata.in](http://www.weatherdata.in)

# Kolli Hills



## Grassroots Institutions and Capitals

**Legends:**

- Village Knowledge Centre
- ⬢ Village Resource Centre
- ☀ Automatic Weather Station
- ⊕ Millet Processing Unit
- ▲ Custodian Farmers' Network
- Community Seed bank



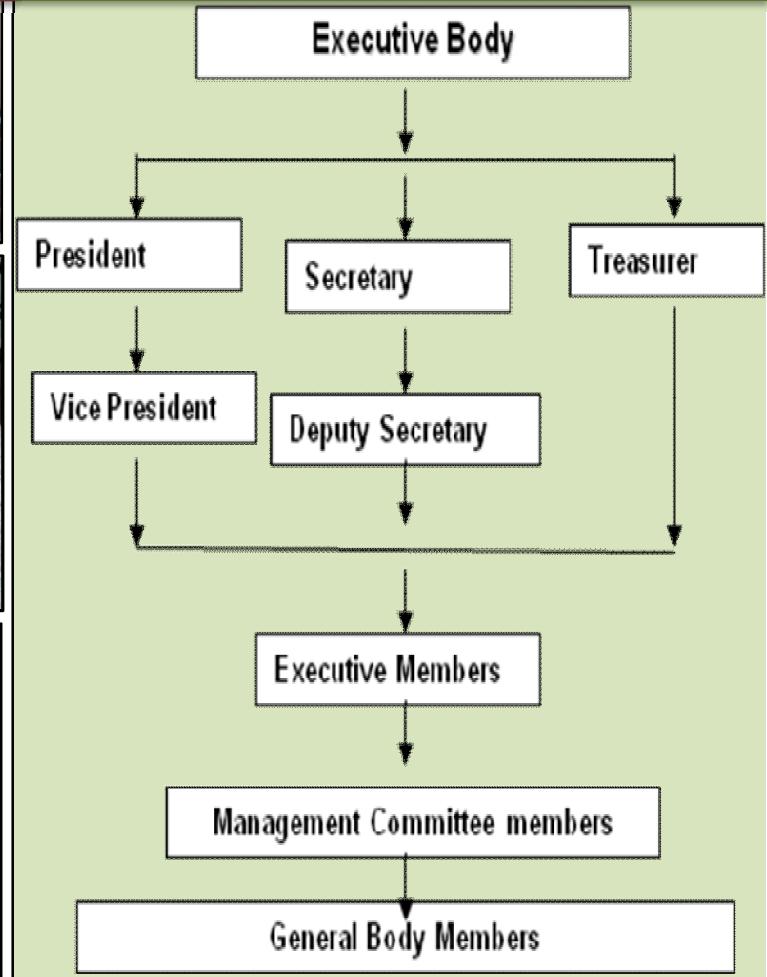
# Collective Action and Governance

## Assets of KHABCOFED

- Total of 109 Groups (16 Men, 30 Women, 1 Mixed , 62 Farmers clubs
- Membership of 985 Males and 526 Females
- Millet producers, Custodian Farmers, Organic producers, Traditional Knowledge holder, Folk Artists, Healers and Entrepreneurs
- Managing 13 Pulversing mills, 3 Dehsuking and Flour mill
- Organic produce collection centres and Community based Value addition units each at three locations
- Village Millet resource Centres at 16 location
- Managing Internal control systems farms under organic farming
- Community based natural food shops at 2 locations
- Total Financial turnover is 92,29,913 INR



## Governance Structure



# Communication



# Campaigning for Millets



Wall Painting



Folk Theatre



Rural Markets



Road Show



Exhibitions at Various Fora

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



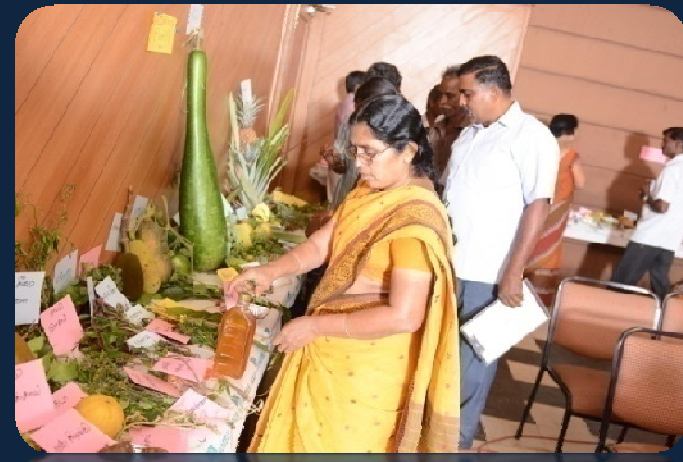


# Engaging Youth, Panchayat Raj Institutions, State departments





# Legal literacy Forum



- “ Legal literacy on PGR conservation PPVFRA and BD Acts and provisions
- “ Registration of Landraces and farmers varieties
- “ Genome savior award provisions



# Policy makers, Scientists, Administrators





# Self Initiatives







இயற்கை மற்றும்  
உடல் நலன் கருதி  
உருவாக்கப்பட்ட  
ஒரு  
அற்புத கலவை



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**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

**Joule Foods**™  
Power your cells

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

Our Network Partner:

**SUMANGALI AGENCY**

68, Thondikaradu, 01245856533

**TIRUCHENGODE - 637 211.**

Namakkal (Dt.)

Print-Rite 0422-4367317

ஜால் ஃபுட்ஸ்-ன் சிறுதானிய குக்கீஸ்  
வாங்கியதால் நீங்கள் சிறுதானிய விவசாயிகளின்  
வளர்ச்சியில் பங்கெடுத்துக் கொண்டுள்ளீர்.

**Combo**™  
mimix

சிறுதானிய குக்கீஸ்  
சுவைத்து மகிழ்வீர்!

**Issai**  
1241200300550

100% Veg

Made with Nutri Millets & Whole Wheat Flour  
A Joule Foods Product  
**Millet Cookies**  
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

**NUTRITIONAL INFORMATION**  
(per 100g of this product unless specified)

Carbohydrates	69.7%
Protein	6.5%
Fat	2.7%
Fiber	6.1%
Energy	300 KJ x Cal

M.R.P. (Incl. of all Taxes)  
Date of Mfg. / Batch No.  
SEE SIDE BOX

Net Weight : 150g

Best before 3 months from date of manufacture

FREE FROM ARTIFICIAL COLOR FLAVOR & PRESERVATIVE

RECYCLABLE DO NOT LITTER

Made with Nutri Millets & Whole Wheat Flour  
A Joule Foods Product  
**Millet Cookies**  
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

**NUTRITIONAL INFORMATION**  
(per 100g of this product unless specified)

Carbohydrates	69.7%
Protein	6.5%
Fat	2.7%
Fiber	6.1%
Energy	300 KJ x Cal

M.R.P. (Incl. of all Taxes)  
Date of Mfg. / Batch No.  
SEE SIDE BOX

Net Weight : 150g

Best before 3 months from date of manufacture

FREE FROM ARTIFICIAL COLOR FLAVOR & PRESERVATIVE

RECYCLABLE DO NOT LITTER

Made with Nutri Millets & Whole Wheat Flour  
A Joule Foods Product  
**Millet Cookies**  
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

**NUTRITIONAL INFORMATION**  
(per 100g of this product unless specified)

Carbohydrates	69.7%
Protein	7.0%
Fat	2.7%
Fiber	6.1%
Energy	304.3 KJ x Cal

M.R.P. (Incl. of all Taxes)  
Date of Mfg. / Batch No.  
SEE SIDE BOX

Net Weight : 150g

Best before 3 months from date of manufacture

FREE FROM ARTIFICIAL COLOR FLAVOR & PRESERVATIVE

RECYCLABLE DO NOT LITTER

Made with Nutri Millets & Whole Wheat Flour  
A Joule Foods Product  
**Millet Cookies**  
சாமு குக்கீஸ் (Little Millet)

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

100% Veg

**NUTRITIONAL INFORMATION**  
(per 100g of this product unless specified)

Carbohydrates	69.7%
Protein	6.4%
Fat	2.7%
Fiber	6.1%
Energy	300.3 KJ x Cal

M.R.P. (Incl. of all Taxes)  
Date of Mfg. / Batch No.  
SEE SIDE BOX

Net Weight : 150g

Best before 3 months from date of manufacture

FREE FROM ARTIFICIAL COLOR FLAVOR & PRESERVATIVE

RECYCLABLE DO NOT LITTER

Made with Nutri Millets & Whole Wheat Flour  
A Joule Foods Product  
**Millet Cookies**  
குதிரவாலி குக்கீஸ் (Barnyard Millet)

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

100% Veg

**NUTRITIONAL INFORMATION**  
(per 100g of this product unless specified)

Carbohydrates	69.7%
Protein	6.4%
Fat	2.7%
Fiber	6.1%
Energy	300.3 KJ x Cal

M.R.P. (Incl. of all Taxes)  
Date of Mfg. / Batch No.  
SEE SIDE BOX

Net Weight : 150g

Best before 3 months from date of manufacture

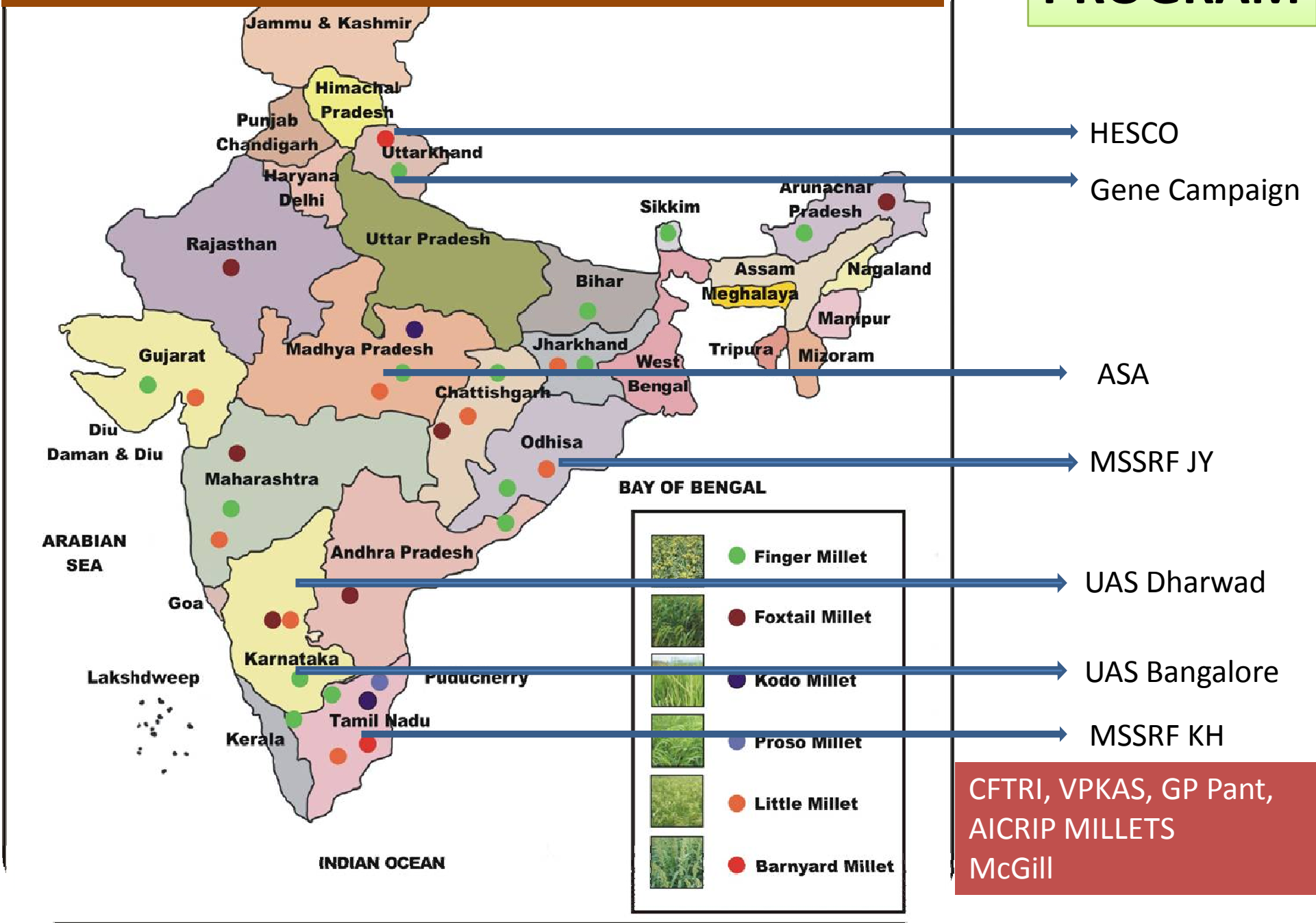
FREE FROM ARTIFICIAL COLOR FLAVOR & PRESERVATIVE

RECYCLABLE DO NOT LITTER



# MSSRF and Millet Research Partnerships

## PROGRAM



## Critical leads for this IFAD EU CCAFS project

- “ Diversity Estimation and Documentation climate resilient agriculture practices (Millet and Associated crop diversity)
- “ Community based Seed banks and Information systems
- “ On Farm mechanisation and Post harvest processing small millets
- “ Community institution for NUS promotion
- “ Branding, labelling and packaging for millet products
- “ Diversity based local production, local market development and private sector partnership
- “ Establishment of local weather stations and Market information systems
- “ Attempt to include in the ICDS, NMS and PDS





Thank You

