

Know Millets Webinars
May 2020

Session #03



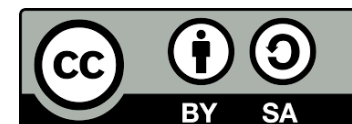
Millets and Agro-bio, Food & Nutritional Diversities

Past, Present & Future

Dwiji Guru

10th May 2020

+91-99000-54878
dwiji@themillet.org



About the Know Millets Webinars

▲ Different aspects of millets

- ✦ Ecology
- ✦ Historical context
- ✦ Sustainable food systems
- ✦ Community centric
- ✦ Nutrition & Socio – economics
- ✦ Technology & Engineering

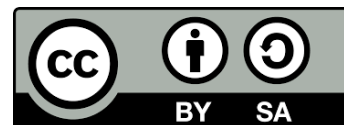


Sustainable food systems perspective

Please note slide number
for easy reference during Q&A



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dwiji@themillet.org



2 of 14
10/05/2020

In this presentation

▲ Diversity

- ✦ What is it?
- ✦ Why nourish it?

▲ Agro-bio diversity

- ✦ Role of millets

▲ Millets & food diversity

- ✦ Security & Sovereignty

▲ Nutritional diversity

- ✦ What millets offer?
- ✦ Bio fortification

▲ Summary



What is diversity?

- ▲ Dynamic and multiple Resource utilization cycles
 - ✦ Oxygen
 - ✦ Energy
 - ✦ Nutrients
- ▲ Value of each determined by its interactions with the other
 - ✦ Higher significance than its intrinsic value
- ▲ More than the sum of parts



Why nourish diversity?

▲ Evolution

- ✦ Natural Selection
- ✦ Survival of the fittest

▲ Climate Crisis

▲ Anthropocentric reasons

- ✦ Manage risk
- ✦ Protecting an inheritance



Agro-bio diversity ... in theory

▲ Biological diversity

- ✦ Flora
- ✦ Fauna
- ✦ Micro-organisms

▲ Agriculture

- ✦ Production for human consumption (use)
- ✦ Food (or other material)



Agro-bio diversity ... in practice

▲ Many different philosophies

- ✦ Natural farming
- ✦ Permaculture
- ✦ Sustainable farming / LEISA

▲ Agro-bio diversity in a farm

- ✦ Closes the nutrient loop
- ✦ Encourages thinking/planning
 - ★ Beyond self
 - ★ Long term



Millets in agro-bio diverse farms

- ▲ Minimal inputs
- ▲ Shallow roots – top soil anchors
- ▲ Pest Management
 - ✦ Pigeon pea + Foxtail millet system
- ▲ Fodder value



Millets & food diversity

- ▲ Current staples are
 - ✦ High input
 - ✦ Sensitive crops
- ▲ Millets are
 - ✦ Low input
 - ✦ Hardier
- ▲ Millets are already part of contingency plans across the land



Millets: food security & sovereignty

- ▲ Wider procurement
 - ✦ Dry land farms
 - ✦ Small & marginal farmers
- ▲ Supply chain
 - ✦ Localized
 - ✦ Shorter
- ▲ Community centric approach



Nutritional diversity

➤ Nutrients need to be

- ✦ Assimilable
- ✦ Accessible
- ✦ Sustainable

➤ Millets

- ✦ Diversify cereals
- ✦ Wide range of nutrients

Nutritional content in 100 gms of dry Grain	Protein(in gms)	Carbohydrates (in gms)	Fat (in gms)	Minerals (in gms)	Fiber (in gms)	Calcium (in mgs)	Phosphorous (in mgs)	Iron (in mgs)	Energy (in kCal)	Thiamin (in mgs)	Niacin (in mgs)
FOXTAIL	12.3	60.2	4.3	4	6.7	31	290	2.8	351	0.5	3.2
LITTLE	7.7	67	4.7	1.7	7.6	17	220	9.3	329	0.3	3.2
KODO	8.3	65.9	1.4	2.6	5.2	35	188	1.7	535	0.15	2
PROSO	12.5	70.4	1.1	1.9	5.2	8	206	2.9	354	0.41	4.5
BARNYARD	6.2	65.5	4.8	3.7	13.6	22	280	18.6	300	0.33	4.2
BROWN TOP	8.9	71.3	1.9	3.9	8.2	28	276	7.7	338	^	^
SORGHUM	10.4	70.7	3.1	1.2	2	25	222	5.4	329	0.38	4.3
PEARL	11.8	67	4.8	2.2	2.3	42	240	11	363	0.38	2.8
FINGER	7.3	72	1.3	2.7	3.6	344	283	3.9	336	0.42	1.1
PADDY RICE	6.8	78.2	0.5	.6	1	33	160	1.8	362	0.41	4.3
WHEAT	11.8	71.2	1.5	1.5	2	30	306	3.5	348	0.41	5.1
QUINOA	14	64	6	^	7	36	457	4.6	368	0.36	^

Compiled from a study published by National Institute for Nutrition, Hyderabad and other sources for Quinoa and Brown top millet.

Nutritional Diversity vs. Fortification

- ▲ Holistic vs. Reductionist
- ▲ Transformation vs. Tweaking
- ▲ Entrepreneurship vs. Corporatization
- ▲ Community centric vs. Product centric
- ▲ Skill development vs. Increasing external dependency
- ▲ Long term vs. Short term

Summary

- ▲ Diversification is inevitable
- ▲ Need to build resilience to survive disasters
 - ✦ Natural
 - ✦ Man made / Economic
- ▲ Bringing back millets is one of the first steps





Thank you !

For more info ...

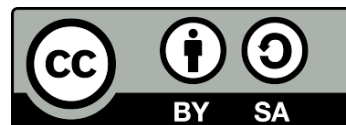
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14 of 14
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