

Grain characteristics

Structural, Nutritional & Storage

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16th May 2020

About the Know Millets Webinars

▲ Different aspects of millets

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

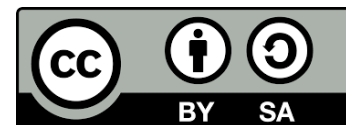
Sustainable food systems perspective



Please note slide number
for easy reference during Q&A



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In this presentation

- ▲ Why use characteristics?
 - ✦ For deriving better value
 - ✦ For intrinsic benefit
- ▲ How of characteristics
 - ✦ Tools & Techniques
 - ★ Physical
 - ★ Cooking
- ▲ Storage
 - ✦ Challenges
 - ✦ Solutions
- ▲ Summary



Characteristics – Why?

▲ For deriving better value

✦ Mapping the variations

★ Rainfed crops

✦ Varietal improvements

✦ Communication

▲ For intrinsic benefit

✦ To know them better

✦ Agro-bio diversity



Characteristics – Parameters

▲ Physical

- ✦ Size
- ✦ Colour
- ✦ Shape
- ✦ Layers
- ✦ Moisture content

▲ Cooking

- ✦ Water
 - ✦ Hardness of water
- ✦ Time
 - ✦ Heat
 - ✦ Pressure

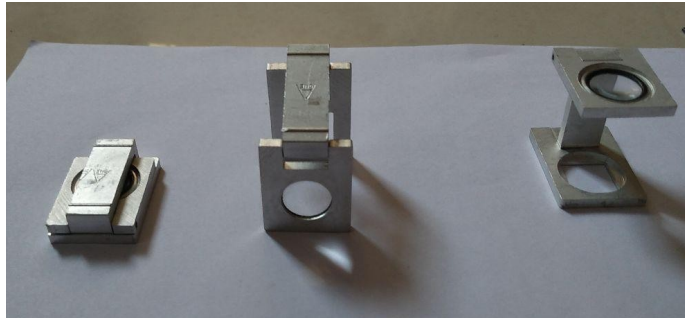
Tools & Techniques – Physical

- ▲ Clear objective to characterization
- ▲ Lighting
- ▲ Sampling techniques
- ▲ Physical Characteristics
 - ✦ Magnifying glass
 - ✦ Ruler
 - ✦ Camera

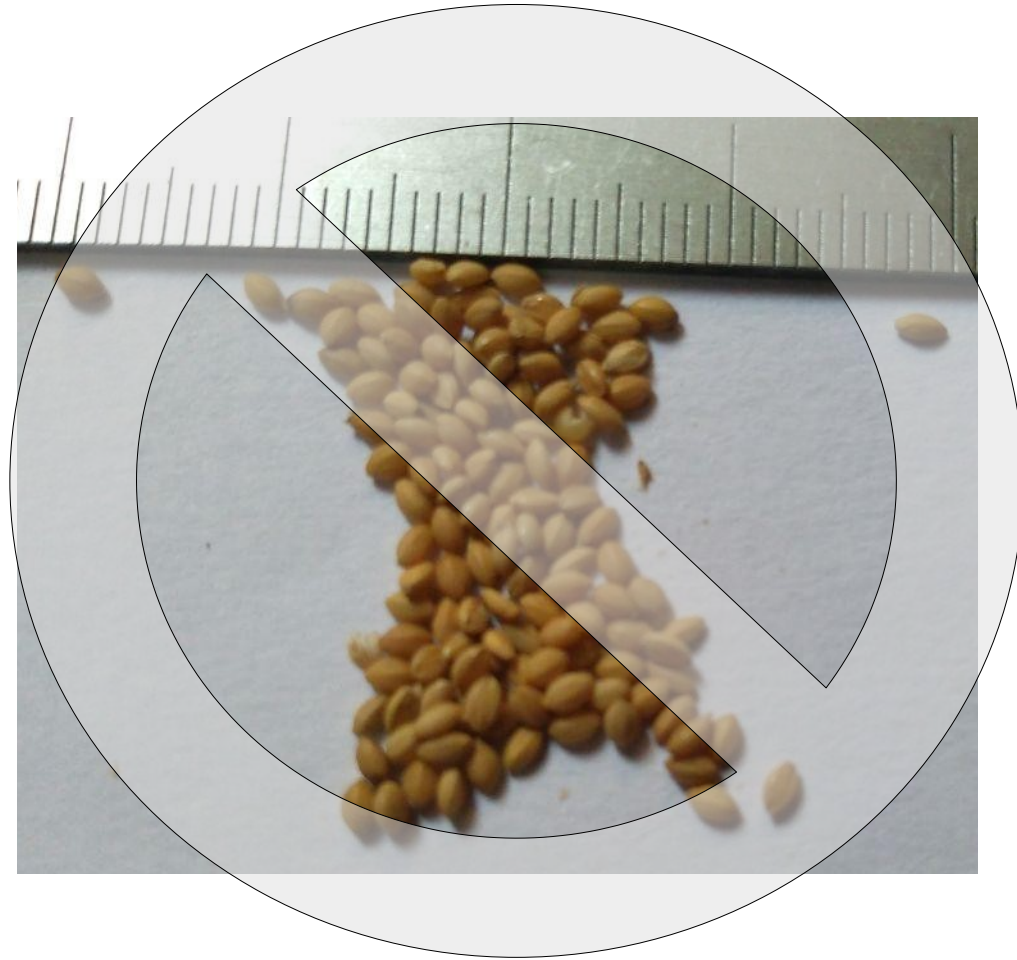


Observe > Make notes > Discuss > Repeat

Tools – Magnifying Glass



Sample photos



Tools & Techniques – Cooking

▲ Even more important

- ✦ Patience

- ✦ Notes (and Photos)

▲ Design of experiments

▲ Compare to bringing 1 ltr
of water to a boil

▲ Instruments to measure

- ✦ Volume

- ✦ Weight

- ✦ Temperature

- ✦ Time

Design > Trial > Make notes > Discuss > Repeat



Storage

- ▲ Extremely nutritious
 - ✦ For many species
- ▲ Pest Infestation
- ▲ Rancidity



Storage – Challenges

▲ Pest infestation

✦ Husked

- ★ In storage
- ★ Post Hulling only

✦ Naked grains

- ★ From farm
- ★ In storage

▲ Rancidity

✦ Millet rice – 30 to 160 days

✦ Millet grits & rawa – 15 to 90 days

✦ Millet flours – 5 to 15 days

Storage – Solutions

▲ Pest Infestation

- ✦ Design of
 - ★ Facility
 - ★ Machines
 - ★ Tools
 - ★ Process
- ✦ Discipline & skill recognition

▲ Rancidity

- ✦ Design of
 - ★ Machines
 - ★ Tools
 - ★ Process
- ✦ Discipline & skill recognition

Shorter Supply Chains > Community Centric F.S.



Summary

- ▲ Characteristics - to recognize for what they are
- ▲ Tools
 - ✦ Innovate
 - ✦ Improvise
 - ✦ Systematize
- ▲ Storage challenges can be addressed with systemic intervention





Thank you !

For more info ...

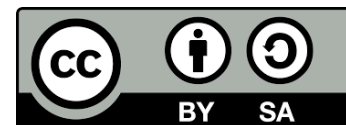
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