

01. **Experiment number and title** : **21.5.3.41**
(As per CJA) Drying and storage study of sweet sorghum tender grain.
02. **Budget Head** : 12940
03. **Collaborative department, if any** : Main Sorghum Research Station, Surat
Food Quality Testing Laboratory, Navsari

04. **Background information:**

The sorghum particular is also known as nutria-cereals and are a source of food, feed and fodder in south Gujarat. One of the popular varieties developed by main sorghum research station, surat for pauk purpose is 'surat pauk-1'. The emerging popularity of on-farm drying of grain sorghum has created some discussion regarding the advantages and disadvantages of on-farm drying and storage compared with selling wet grain for the buyer to dry. Some disadvantages of on-farm drying and storage operations include added capital and operating cost of equipment and the increasing costs of high electrical power demand. mechanical drying leads to shrinking in grains. Higher temperature damage not only the grain texture but also taste and colour, thus reduce the quality as well as sale price. To overcome this issue an experiment was planned with following objectives.

05. **Objectives:**

1. Standardization of process for drying of sweet sorghum tender grain.
2. Evaluation of quality parameters and storage stability of dried grains.
3. Cost-economic analysis of the developed technology.

06. **Principal investigator and associates** : PI- Er. P. S. Pandit
Co PI- Dr B. Davara and Dr. T. Vyas
07. **Location and Agro-climatic sub-region** : PHTC, NAU, Navsari, FQTL, NAU, Navsari, MSRS, NAU, Surat
08. **Year and Season** : Year of commencement: 2025
Year of completion: 2027
09. **Crop and Variety** : dried sweet sorghum grains.
10. **Experimental details** :

(a) **Treatments for performance:**

Factor-1:

Drying Method:

M₁=Sun drying; M₂=Shade drying

Factor-2:

Drying bed layer thickness:

L₁: 20mm, L₂: 30mm, L₃: 40mm

Treatment Combination : 2 x 3 = 6

Drying Methods	Drying bed layer thickness		
	L ₁ : 20mm	L ₂ : 30mm	L ₃ : 40mm
M ₁ =Sun drying	T ₁	T ₂	T ₃
M ₂ =Shade drying	T ₄	T ₅	T ₆

Storage Study: up to 12 months

Packing Material:

P₁: 125µ HDPE, P₂: Metal Container, P₃: Glass Container.

- (b) **Experimental Design** : FCR and CRD for Storage
- (c) **Replications/Repetitions** : 3,6
- (d) **Sample Size** : 500g grains / treatment / replication

11. **Observations To Be Recorded:**

Moisture Content, Size, Shrinkage, Color, Magnesium, Organoleptic Parameters, Rehydration Ratio, Drying Parameters, Drying Characteristics, microbial analysis, etc.

12. Methodology (if necessary):

Sweet tender sorghum grains will be procured from Navsari and dried as per treatment combination. The dried grain will be stored and analyzed for evaluation of quality parameters.

13. Experiment Flow Chart :

