

Food and Nutrition Security through Promotion of Millets & Inclusion of millets into Public Distribution System, Anantapuramu District

Proposal from District Administration, Anantapuramu

Introduction

It is increasingly recognized that, though we are investing a large chunk of money on the food schemes, a large quantum of population is still in the pangs of under nutrition or malnutrition. Though we are able to meet the energy requirements of the people by providing rice through the PDS, important nutrients and micronutrients are missed out from this grain. It is in this context we need to broadbase the food basket to cater to not only the food requirements but also the nutritional requirements of the people at large.

On another note, more than 50% of the state's agriculture is rainfed. So we need to play a balancing act in making the best possible utilization of the rainfed areas to produce crops that can be grown with less quantity of water, but at the same time able to meet the nutritional food requirements of the people, by adopting the decentralized production and procurement process.

Why Millets in Public Distribution System?

Millets are nutritious small grained cereals. In Andhra Pradesh, districts like Anantapur, Kurnool, Visakhapatnam, Vizianagaram and Srikakulam were predominantly the millet growing locations as rainfed crops. However, with the introduction of other commercial crops, improvements in the irrigation facilities, low market demand, these millets substantially lost their acreage, despite being well adaptive to rainfed agriculture and nutritionally superior. Besides, the introduction of rice at a highly subsidized price through PDS also changed the people's choice of crops as their food security is mainly taken care of by the safety net. As a result of this, the crop landscapes as well as food habits have undergone a significant change pushing these millets to few tribal pockets and marginal soils.

Despite the continued declining trend in millet acreage, the recent developments on productivity of different crops in India as reported by National Rainfed Agricultural Authority in the last decade (2001 to 2009) showed an optimistic outlook for millets with productivity of coarse cereals (millets + maize & Barely put together) at 4.8% compared to the total food grains (3.31%) for the same period. Among the individual crops, highest productivity was achieved with Bajra (4.22%) followed by Jowar (3.66%), maize (2.87%), small millets (2.63%), Ragi (1.37%) compared to the declined

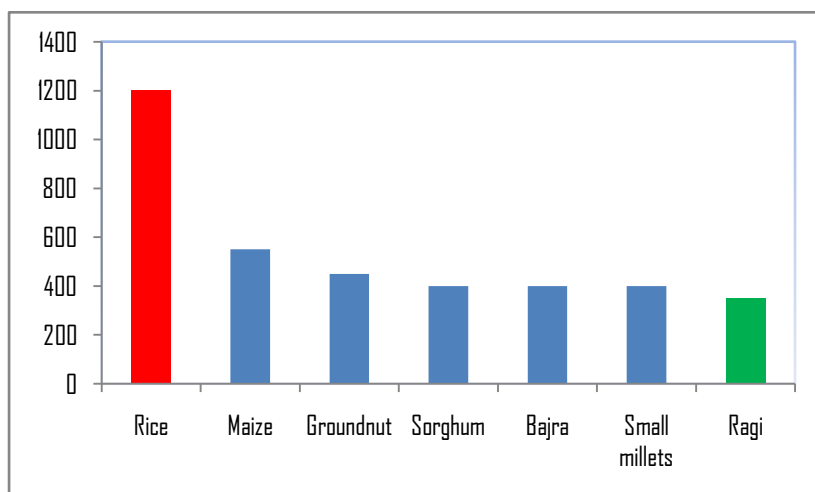
growth under **assured irrigated** situations for wheat (0.98%) and rice (1.92%). These results are a clear indication that, a clear shift of focus is required in our approach and need to promote the production and procurement of the alternative grains to rice and wheat to meet the growing food requirements of the increasing population. It is in this context, we propose to bring millets into the fold of PDS through decentralized production and procurement, especially from rainfed locations. This decisive step will not only help in broadbasing the food basket in the PDS but also help in supplying the more nutritious foods through the safety net programme. Besides, their inclusion will help in bringing in private investment into the processing and value addition to mainstream these nutritious millets in the regular food systems of the state.

The proposed decentralized production and procurement of millets will help in cultivation of the low water and other input requiring millet crops in the rainfed locations thereby reducing the stress on the declining ground water resources and power consumption in drawing up the ground water for irrigating these crops.

A cursory look at the following table shows the lower water requirement of these millet crops compared to rice which requires almost three times more water for the cultivation and also the power consumption in agriculture.

Water Requirement of different crops

Though millets are low input demanding, but are highly nutritious crops compared to rice. They contain valuable nutrients and micronutrients, higher amount of fibre and low glycemic index. As a result of these nutritional benefits, their consumption is slowly raising among the urban consumers especially Diabetics.



The promotion of millets in to the diets of the communities will have multiple benefits in improving the health standards and also in directly impacting the demand for these grains on a large scale. Millets are not only rich in fibre but also in other

micronutrients and other health beneficial phytochemicals and have been associated with a lower risk of cardiovascular diseases (CVD) and type 2 diabetes mellitus. These benefits have been proved by several studies nationally and internationally.

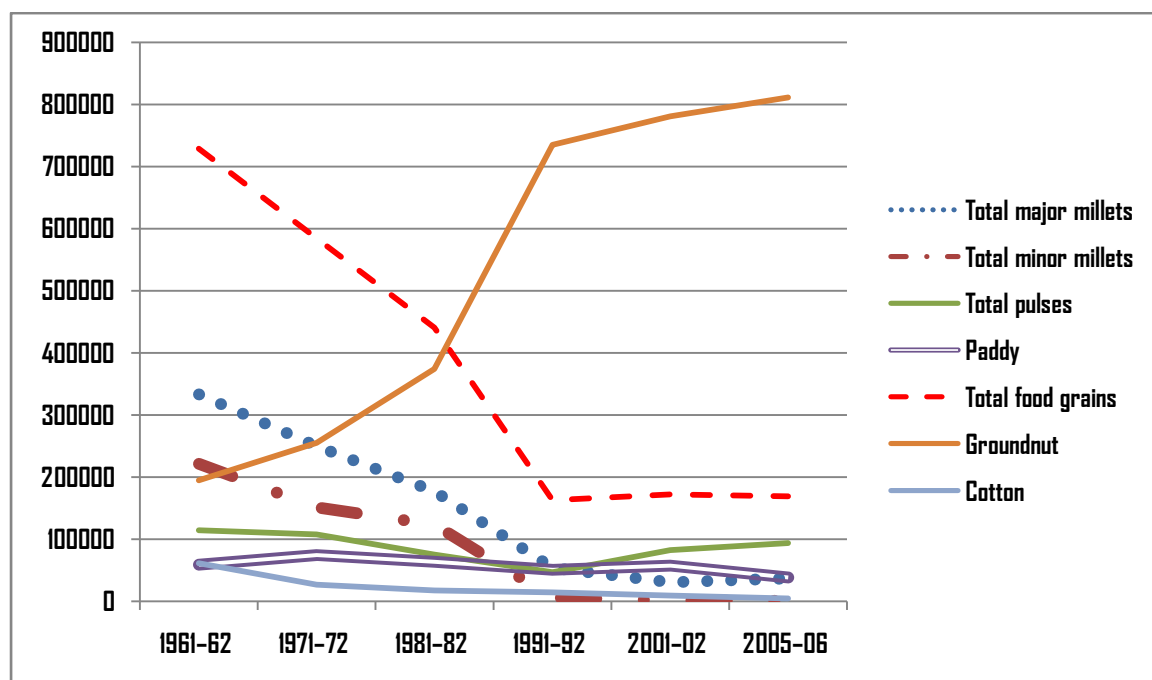


Nutrient composition of sorghum millets and other cereals (per 100 g edible portion; 12 percent moisture)

	Protein (g)	Fat (g)	Minerals (g)	Fibre (g)	Carbohydrate (g)	Calories (Kcal)	Calcium (mg)	PHosphorous (mg)	Iron (mg)	Thiamin (mg)	Riboflovin (mg)	Niacin (mg)	Magnesium (mg/100g)	Zinc (Zn)
Sorghum	10.4	3.1	1.2	1.6	70.7	329	25	222	5.4	0.37	0.11	3.1	171	1.6
Bajra	11.6	5	2.3	1.2	67.5	361	42	296	8	0.33	0.25	2.3	137	3.1
Ragi	7.3	1.3	2.7	3.6	72	328	344	283	3.9	0.42	0.19	1.1	137	23
Little millet	7.7	4.7	1.5	.6	67	341	17	220	9.3	0.3	0.09	3.2	133	3.7
Foxtail millet	11.2	4.3	3.3	8	60.9	331	31	290	2.8	0.59	0.11	3.2	81	2.4
Kodo millet	8.3	1.4	2.6	9	65.9	309	27	188	0.5	0.33	0.09	2	153	1.4
Proso millet	12.5	1.1	1.9	2.2	70.4	341	14	206	0.8	0.2	0.18	2.3	147	0.7
Barnyard millet	11	3.9		13.7	55	300	22	280	18.6	0.33	0.1	4.2	82	3
Rice	6.8	0.5	0.6	0.2	78.2	345	10	160	0.7	0.06	0.06	1.9	90	1.4

Anantapuramu Context:

Millets, considered to be the 'nutritious grains' are traditionally produced and consumed in district. However, overtime the consumption has drastically declined having a negative impact on the millet production.



Area under major millets has dropped from 3.35 lakh ha in 1961-62 to an abysmal level of 28,500 ha (in 2004-5). Especially, minor millets area has dropped from 7.2 lakh ha in 1961-62 to 1045 ha in 2005-06. The traditional diverse crop systems have been replaced by groundnut that has become a mono-crop. The diverse nutritious diets of the communities have been severely affected; the present cereal basket is narrowed to paddy. The poor depending on PDS grains are particularly affected- as their expenditure on non-cereal items is low.

Through minor millets area reduced drastically, still it is there in their food basket as *Ragimudda*. However, millets are gaining popularity in recent times for varied reasons; particularly in response to larger health crisis such as diabetes resulting from nutritional imbalance. Farmers are also showing interest in cultivating it as prices for millets are also increasing recently

It is in this context, the district administration is proposing a small pilot initiative to give spurt to millet consumption. The pilot initiative draws from the limited experience of AP Drought Adaptation Initiative, a World Bank supported program implemented by the Department of Rural Development in two Mandals and in 5 fair price shops.

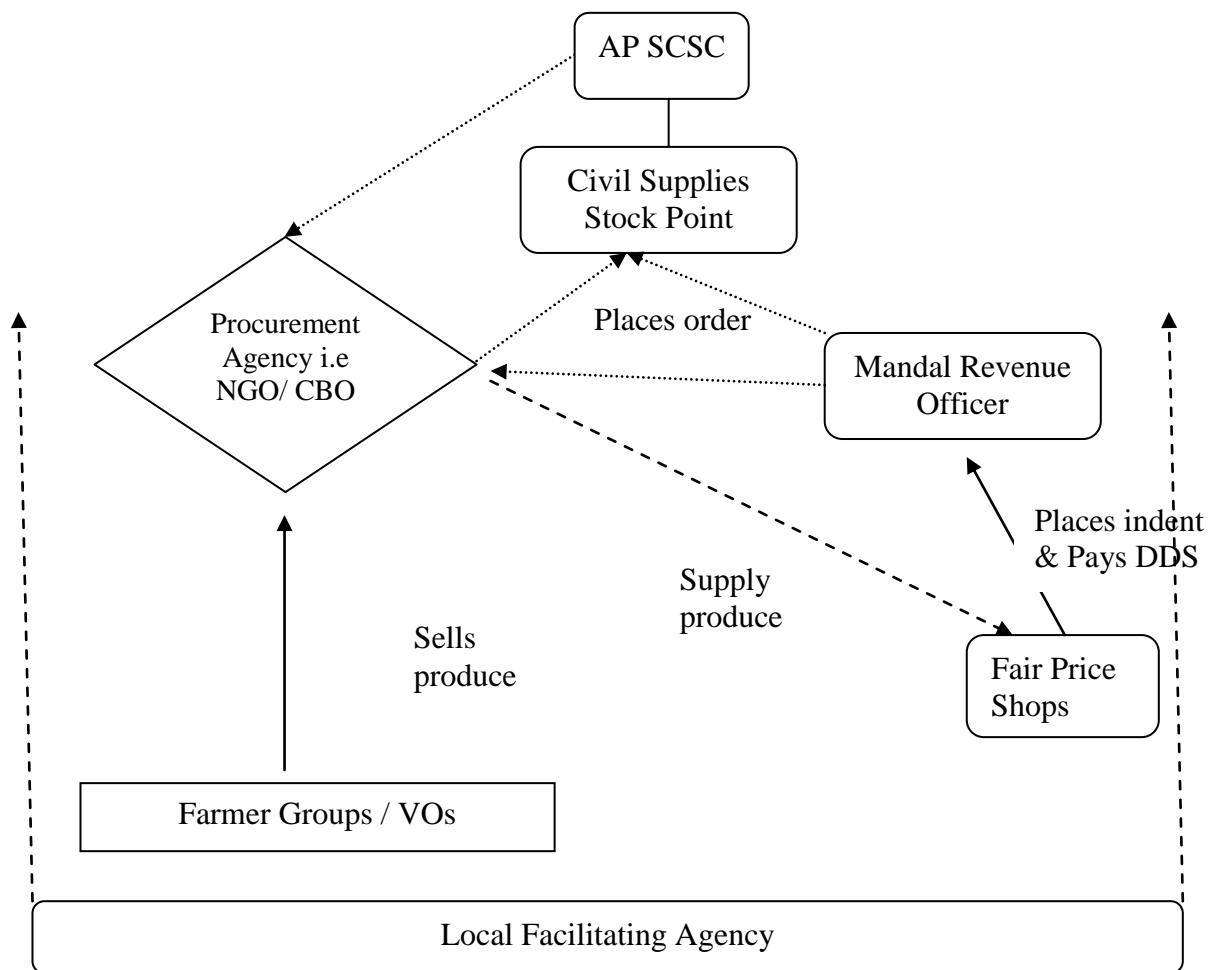
The Proposal

The district administration intends to undertake a comprehensive program of including millets into the Public Distribution System and take up decentralised production and procurement programs within the district. This will be taken up in partnership with CBOs and facilitating organisations. A larger campaign in the villages on millets (both awareness generation and skills in using them in different forms) will be taken up in the selected villages to target 10% shift in cereal consumption towards millets.

The components of the program are:

1. Distribution of millets (Ragi) through the selected 60 Fair Price Shops in about 12 Mandals. This will cover about 25000 poorer households. An entitlement of 2/3/5 kg of Ragi will be created per individual per month at Rs.1 per kg. Pilot will be started with Ragi as still ragi is in their consumption in the form of Ragimudda and small area under ragi is there and farmers know how to cultivate. It can be stored for many days without storage pests problem and no processing waste.
2. Establishing decentralised procurement systems in partnership with the Community Based Organisation. Civil society organisations providing oversight and logistic support.
3. Strengthening the millet production system by providing assured price support and procurement. The district administration will provide necessary extension and input support to improve productivity of millets through the existing programs of the Agriculture Department.
4. Promotional campaign for building awareness and culinary skills among households on millet based foods.
5. Addressing the infrastructure needs of the value chain, particularly of processing.

The Proposed System:



Estimation of budgets requirement to introduce millets into PDS for different models in lieu of Rice

The following Table crudely approximates the budget implication of eventual substitution of Ragi for Rice. In the three scenarios There will be net saving for government if Ragi is introduced into PDS.

Components	Present scenario	Present scenario	Rice 18Kg + Ragi 5 Kg		Rice 17Kg + Ragi 3 Kg	
	Common Rice	Grade-A Rice	Grade-A Rice	Ragi	Grade-A Rice	Ragi
Net procurement cost/ kg	22.65	23.29	23.29	22.07	23.29	22.07
Total distribution costs	3.4	3.4	3.4	3.4	3.4	3.4
Economic cost of Rice	26.05	26.69	26.69	25.47	26.69	25.47
Sale price of rice in PDS (Rs/kg)	1	1	1	1	1	1
Subsidy borne by the Government	25.05299	25.69	25.69	24.47	25.69	24.47
Average supply of grains / household / month (kg)	20	20	18	5	17	3
Subsidy for 25000 HH / year (lakhs)	1503.18	1541.15	1387.03	367.03	1309.98	220.22
Net surplus over existing model		0		-212.92		10.95

**Based on budgets availability Govt can take the decision on model*

While Ragi can part-substitute rice eventually, for the pilot program it is important to provide Ragi in addition to the existing entitlement of Rice so that people get used to consuming ragi from PDS system. Also, this is required to stabilise the protocols of supply and distribution chains of ragi into the PDS.

!8kgs rice and 5 kg Ragi per household would need a budget of Rs.213 lakhs for 25000 householdse. This budget needs to be provided for in the program.

Decentralised production plan

On an average, 3000 acres of land will be sufficient to cater to Supply requirements to 25000 households for a period of 1 year. Productivity can be increased by adopting good management practices

Plan for production

Land requirement for procurement	Existing productivity		Good productivity		Best productivity	
	With 5kg	With 3 kg	With 5 kg	With 3 kg	With 5 kg	With 3 kg
Total households	25000	25000	25000	25000	25000	25000
Qty / hh/ month (kg)	5	3	5	3	5	3
Total requirement (tonnes) / month	125	75	125	75	125	75
Total requirement (tonnes) / year	1500	900	1500	900	1500	900
Avg productivity / acre (Kg/acre)	400	400	700	700	800	800
Total land required to meet annual requirement	3750	2250	2143	1286	1875	1125

Modalities of Operation:

1. An agreement with the district level consortium for the program comprising of CBOs and civil society organisations partnering in the program with representation from Department of Civil Supplies Agriculture
2. Finalising the proposed Fair Price Shops- initially the areas where the organisations are working on this agenda will be taken up.
3. A workshop with all the FPS dealers and other stakeholders to finalise and communicate the objectives and modalities of the program.
4. **Awareness campaign** and culinary skill building in the villages covered by the Fair price shops.

Proposal on inclusion of nutritious millets into PDS by WASSAN

5. Identifying the **procurement agency** (agencies)
6. Agreement between the Department of Civil Supplies (Stock Point) and the Procurement Agency (CBO or NGO) – with a clear **mutually agreed support price**.
7. The facilitating organisation and the Procurement Agency work along with the **Department of Agriculture in promoting millet production**.
8. The FPS dealers pay to the MRO (APSCSC) the required amount by **DD placing their monthly indent**.
9. MRO passes on the indent to the Stocking Point and a copy to the procurement agency.
10. The procurement agency upon receiving confirmation from the Stock Point will **organise supply of grain**. At any point of time the procurement agency will keep grains required for about 3 months.
11. If the Stocking Point so wants the procurement agency can directly deliver the packed grain to the Fair Price Shops.
12. **APSCSC pays the amount against the invoice of supply of grain** to the procurement agency at rates agreed upon earlier.
13. The FPS dealer will sell the grain; any balances will be rolled over to the next month.
14. The facilitating agencies will handhold the entire operations and help in systems development and capacity building.

Main partners in the pilot

1. Dept of Civil supplies
2. Dept of Agriculture
3. Facilitating agencies i.e NGOs/CBOs
4. WASSAN – the Lead Technical and Coordinating Agency
5. ResRA- at Indian School of Business, Hyderabad : research partner
6. Farmers and Ration cardholders

Role of Civil supplies department

1. Anchoring the program
2. Monitoring the pilot
3. Supports the NGOs to implement the pilot smoothly i.e procurement, storage and distribution

4. Required letters will be issued to concerned officials regarding the pilot

Department of Agriculture:

1. Linking the ragi growing farmers with millets promotion schemes like NFSM
2. Provides training to farmers, NGOs and also sends resource person.
3. Monitors the production part
4. Linking with ARS, Perumallapalli and Nandayal

Role of CBO

- It procures the ragi (cost norms for paddy procurement for CBOs are applicable to it) Closely works with FCI
- Maintains the records

Roles of the Facilitating Agency:

- To support in Awareness Building on Millets with the local people
- Information collection for documentation as part of studies or surveys.
- Support in the Millets production enhancement and procurement linkages.
- Strengthening of the local procurement setup.
- Prepares the list of farmers who received benefits from NFSM and submits the required documents to Dept of Agri

WASSAN

1. Act as nodal facilitating agency
2. Bring various partners together and support with necessary documentation and conceptual development of the pilot.
3. Liaison with APSCSC, Department of Agriculture at District and state and NGOs at the field level.
4. Documentation and analysis of the experience
5. Identify capacity building requirements, monitoring of the program and identification of gaps and facilitating appropriate ameliorative measures.
6. Support NGOs in their work and in building their capacities.
7. Central compilation of databases
8. Prepares the capacity building plan

Role of Re-Searching Rainfed Agriculture (ReSRA) Group at the Indian School of Business:

1. Conduct baseline survey and to do consumer preferences evaluation

2. Mid-line survey to take stock of consumers' opinion and logistics evaluation >> this feeds back into the design of the program
3. End-line evaluation – and strategy formulation for mainstreaming.

End results of the pilot

1. Increased area under millets
2. Increased Household consumption of millets
3. Increased local markets for millets
4. Established required processing and storage facilities

This pilot experience is expected to generate substantial experience / lessons and a robust design for district level adoption at a later date.



Estimated Budgets:

S.NO	Particulars	Details	Year 1 (Lakhs)	Year 2 (Lakhs)	Total (Lakhs)	Remarks
1	Total Subsidy amount to provide 5kg ragi/hh/month @Rs.1 /Kg (18kg rice+ 5kg ragi)	25000 HHs	213	213	426	
2	Baseline, end -line assessment and research studies on millets uptake pattern	Lumpsum	50	50	100	
3	Organizing millets reipe trainings, competitions to raise awareness among the consumers	Rs. 5000/evetn/*25 events	1.25	1.25	2.5	
4	Millet production & productivity enhancement at the village level by providing critical inputs in time (such seeds and fertilizers etc)	Rs.1600/ac/from NFSM Coarse cereal schemes				
5	Monthly meetings to review the status of implementation and discuss the issues	Rs. @ 10000/mtg	1.2	1.2	2.4	
6	Training/meetings for dealers/procurement agencies/others	Rs @ 15000/meeting	1.8	1.8	3.6	
7	Costs involved in Procurement of Ragi by CBO (as happening in Paddy procurement by CBOs and same cost norms will be applicable to it)	Rs.30/Q	4.5	4.5	9	FCI will supply the gunney bags & supports the transport. CBO will collect Rs. 22/Q from farmers to meet Hamali etc expenditure
8	Facilitating costs to organisations	Rs.1000/250HH/month	12	12	24	

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9	Overall coordination and documentation for nodela organisation	Rs.4500/month/,mandal	6.48	6.48	12.96	
10	Total (in lakhs)		290.23	290.23	580.46	

The convergence budget estimates include:

- **Additional supply** of ragi @ 5 kg per household at Rs.1 per kg subsidy and setting up supply and distribution chains. (Rs.367 lakhs) – this will vary with the price of ragi and local costing of the supply chain.
- **Promotion of ragi cultivation** and improving productivity
- Promotion of modern recipes and household level **campaign on increasing millets consumption** in various forms at household level.
- Research studies on consumer preferences, consumer uptake and impact of introduction of ragi into PDS on household level consumption pattern and nutrition to be carried out by ResRA at ISB.

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