

Tribal Sub Plan Annual Progress Report: AICRP Small Millets *Kharif* 2020-21

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Executive summary

Tribal Sub Plan: 2020-21: Programme under Scheduled Tribal Component (Tribal Sub Plan) resulted in introduction of latest varieties and improved technologies of finger millet, foxtail millet, little millet kodomillet, barnyard millet, proso millet and browntop millet in tribal areas for cultivation and also consumption. The tribal population in different small millets growing states (Andra Pradesh, Chhattisgarh, Karnataka, Madhya Pradesh, Gujarat and Tamil Nadu) are encouraged both in physical and financial terms by facilitating small millets cultivation and increasing production and consumption by providing them with improved varieties and also required inputs and implements.

- The TSP programme was carried out in five centres viz., Athiyandal, Dindori, Jagdalpur, Mandya, Vizianagaram and Waghai. An amount of **Rs. 25 lakhs** was released to different centres during the year 2020-21. Total area covered was **918 ha.** with **797 beneficiaries** covering 6 states
- At Athiyandal the demonstrations of improved practices with latest varieties in farmers field in 30 ha area with finger millet, foxtail millet and little millet indicated that there was an increase in grain yield over farmers practices and the B: C ratio was 2.17 for improved practice, where as it was 1.56 for farmers practice in little millet and totally 65 tribal farmers were benefited.
- At Dindori, the demonstrations in farmers field in 30 ha (Kodo millet-JK 137 & Little millet –JK 4) area with improved practices indicated an increase of 58.83 per cent grain yield and the B: C ratio was 2.62 for improved practice, where as it was 1.35 for farmers practice in kodo millet.. In little millet there was an increase of 45.90 per cent increase in grain yield and the B:C ratio was 1.97 for improved practice, where as it was 1.33 for farmers practice totally 75 tribal farmers were benefited.
- At Jagdalpur the demonstrations in farmers field in 60 ha area with improved practices in Finger Millet (IR-01, CG Ragi 02), Kodo Millet (IK-01, CG Kodo 02), Little millet (CG Kutki 01, CG Kutki 02) for popularization of improved varieties of small millets. The results of the FLD demonstrations in finger millet accounted higher grain yield and BC ratio compare to the farmers practices.
- At The demonstrations in farmers field in 30 ha area in finger millet (Indaf 7) with improved practices indicated that there was an increase of 30.85 per cent grain yield and the B: C ratio was 2.68 for improved practice, where as it was 1.17 for farmers practice. The net returns in improved practices was Rs/- 75643.28/ha as against Rs/- 39066.23/ha in farmers practices and 59 tribal farmers were benefited from the programme.
- Two small millets viz., finger millet (VR-988, VR-929, VR-847) and brown top millet (GPUBT-6) were demonstrated with improved practices at Vizianagaram in farmers field in 568 ha area. The demonstration with improved practices resulted in increase in grain yield and the B: C ratio of the demonstrated crops. Several training programmes were organised for popularization and creating awareness on processing, value addition and nutritional benefits of small millets and processing unit was established at Agricultural Research Station, Vizianagaram and Processing of millets is being done to the tribal farmers at free of cost. . STC(TSP) implementation resulted in increase in production and productivity of millets.
- Front line demonstration were conducted 200 ha Little millet new variety (GNV-3), 323 farmers were benefited. The demonstrated practices accounted higher grain yield as evidenced by 38.31 per cent increase in grain yield and BC ratio was 2.22 in demonstrated plot as against 1.15 in farmers practices. Eighteen Training / Skill development/ capacity building programme were conducted along with exhibitions/ exposure for popularization and creating awareness on processing, value addition and nutritional benefits of small millets at Waghai.
- ICAR-Project Coordinating Unit (Small Millets)- TSP Programme resulted in introduction improved varieties of small millets viz., finger millet, foxtail millet, little millet, proso millet, kodo millet, barnyard and browntop millet with increase in productivity by facilitating small millets cultivation by providing improved variety, equipments/implements and required inputs. Finally, the programme resulted in motivation of tribal farmers for cultivation and consumption of small millets in selected major tribal areas of the country.

Detailed report

1. Introduction

Tribes as a whole are technologically and educationally backward though there are several schemes from the government to improve their status in the society. There is a wide range of variation in the socio economic status as compare to the other sector of the population. At present India has the record of largest tribal population in the world next only to Africa. Scheduled tribes account for 8.2 per cent of the Indian population (2011 census) living mostly in rural India particularly in the hilly region. Scheduled tribes are being known as “Adivasi”. There are a total of 645 distinct tribes in India, majorly found in the states viz., U.P, Bihar, Orissa, M.P, Tamil Nadu, Maharashtra, Jammu and Kashmir, Tripura etc.. There is a wide range of variation in the socio-economic status as compare to the other sector of the population. Tribes as a whole are technologically and educationally backward though there are several schemes from the government to improve their status in the society. It is universally accepted that despite considerable attention, the tribal areas and tribal people in our country lag woefully behind others in development and the tribal's continue to be among the weakest and the most exploited section of the society. Various efforts were undertaken to close the development gap and provide opportunities for tribal's in the areas of education, employment and entrepreneurship.

The Tribal Sub Plan was one such effort by the Government of India initiated during 5th five year plan for the socioeconomic amelioration of the tribal communities. Under the centrally sponsored Tribal Sub Plan project, agricultural schemes are being implemented by the ICAR- All India Coordinated Research Project (Small millets) under ICAR in different tribal areas of the country for improving the livelihood of the tribal farmers by encouraging small millets cultivation and consumption. The basic objective of TSP is to channelize the flow of outlays and benefits from general sectors in the different departments of GOI for the development of scheduled tribes at least in proportion to their population. The programme resulted in introduction of finger millet and other small millets in tribal populations for cultivation and also consumption. The tribal population in different small millets growing states are encouraged both in physical and financial terms by facilitating small millets cultivation and increasing production and consumption by providing them with improved varieties, production technologies and also required inputs and implements.

The TSP was carried out in six centres viz., Athiyandal (Tamil Nadu), Dindori (Madya Pradesh) Jagdalpur (Chatishgarh) Mandya (Karnataka), Vizianagaram (Andra Pradesh) and Waghai (Gujarat.) The amount of Rs. 25 lakhs was released to different centres during the year 2020-21. The Centre-wise number of farmers and area covered during 2020-21 under Scheduled Tribal Component (TSP) is presented in Table 1

Table 1: Centre-wise physical location of tribal farmers/farmers under STC (TSP) during Kharif 2020

Sl. No.	State	Centre	Location of TSP implementation(Dist.)	Crop (Variety)	Farmers benefited	Area covered (ha)
1	Tamil Nadu	CEM, Athiyandal	Dharmapuri, Tiruvannamalai and Tirupattur	Finger millet CO15, Foxtail millet ATL1, CO7, Little millet ATL1, Kodo millet TNAU 86 and Proso millet ATL1	65	30
2	Madhya Pradesh	Dindori	Dindori	Kodomillet and Little Millet	75	30
3	Chattisgarh	Jagdalpur	Bastar	Finger Millet (IR-01, CG Ragi 02) Kodo Millet (IK-01, CG Kodo 02) Little millet (CG Kutki 01, CG Kutki 02)	103	60
4	Karnataka	Mandya	Mysore	Finger Millet-Indaf-7	59	30
5	Andhra Pradesh	Vizianagaram	Vizianagaram	Finger millet (VR-988, VR-929 & VR-847) Brown top millet (GPUBT-6)	172	568
6	Gujarat	Waghai	Dangs	Little Millet Var. GNV-3	323	200
Total					797	918

Table 2: Centre-wise details of physical and financial achievements of STC (TSP) during Kharif 2020

Centre	Amount earmarked (in lakhs)	Financial achievements (in lakhs)	Area (in ha)	No. Of individuals/ Families benefited	Other specialities Created/equipment supplied
Athiyandal	4.00	4.00	30	65	Small farm tools like hand hoe, crowbar, sickle, spade, winnower, pan, etc.,
Dindori (MP)	4.00	3.98	30	75	--
Mandya	4.00	3.97	30	59	Cycle weeder (15 No) Seed cum fertilizer drill (9)Jumbo tarpaulin HDPE(15'x 12')-35 No's Storage Bin(35 No) Sickle (75 No)
Jagdalpur	4.00	4.00	60	103	Small agricultural equipment supplied namely sprayer, spad, cycle hoe, sickle, wheel hoe etc.
Vizianagaram	4.00	4.00	568	172	--
Waghai	5.00	3.00	200	323	Small tool kits, farm implements as a Hand Hoe 80 Families benefitted(For each family of 4 members a single hoe. ie. covers 320 ST farmers)
Total	25.00	22.95	918	797	

2.Implementation of STC (TSP) at Athiyandal, Tamil Nadu

The demonstrations with improved practices at Athiyandal in farmers field in 30 ha area with Finger millet (CO-15), Foxtail millet (CO-7 & ATL1), Kodo millet (CO-3 & TNUA86) and Little millet (ATL 1) for popularization of these crops in tribal areas. The results indicated that there was slight increase in grain yield over farmers practices and the B: C ratio was 2.17 for improved practice, where as it was 1.56 for farmers practice in little millet (Table 1.2). The details of demonstrated practices and farmer's practice are indicated in Table 1.1. Five training programmes organised and other initiatives taken for popularization and creating awareness on processing and value addition of small millets (Table 1.4 & 1.5).

Table 1.1. Details of the demonstrated practices and farmer's practice in STC (TSP) demonstration

S.No	Name of Input	Demonstrated Practice	Farmer's Practice
Agronomic practices			
1	Improved variety	Finger millet, CO-15 Little millet, ATL1 Foxtail millet, CO-7, ATL1 Kodo millet, CO-3, TNUA86	Traditional varieties
2	Method of sowing	Broadcasting /Line sowing	Broadcasting
3	Spacing	10x25 cm	10x10 cm
4	Plant nutrients	MN Mixture, Bio-fertilizers (N&P)	-
Plant protection			
	(i) Seed treatment	Bio-control agent	-
	(ii) Weedicide	-	-
	(iii) Insecticide	-	-
	iv) Fungicide	-	-
Harvesting & threshing			
	Harvesting	A few farmers combined harvester (22%)	-
	Threshing	A few farmers multigrain thresher (31%)	-

Table 1.2. Results of Improved practices under STC (TSP) during Kharif 2020 (Littlemillet)

S. No	Centre	Grain yield (q ha ⁻¹)		Fodder yield (q ha ⁻¹)		Cost of cultivation (Rs.ha ⁻¹)		Gross return (Rs.ha ⁻¹)		Net return (Rs.ha ⁻¹)		B:C ratio	
		IP/FLD	FP	IP/F	FP	IP/FLD	FP	IP/FLD	FP	IP/FLD	FP	IP/FLD	FP
1.	Athiyandal	15.0	14.25	4	40	9300	9900	3000	25462	2050	15550	2.17	1.56

Note: IP= Improved practices; FP= Farmer's practice,

Table 1.3. Material generated/tested/quality seed produced under STC (TSP) during Kharif 2020

S.N	Particulars	Name of crop	Quantity
1	Germplasm and Breeding lines evaluated (Nos)	-	-
2	Entries tested in multi-location trials (Nos)	Finger millet - TNEc 1294 & TNEc 1310 Foxtail millet - TNSi 331 & TNSi 337 Proso millet - TNPm 238 & TNPm 252 Kodo millet – TNPsc 176 & TNPsc 262 Browntop millet – TNEf 307 & TNEf 317	30 ha
3	Varieties identified by Identification Committee (Nos)	2	-
4	Breeders seed produced (Kg)	-	-
5	New technologies developed and tested (Name of technology & numbers)	Finger millet - TNEc 1294 & TNEc 1310 Foxtail millet - TNSi 331 & TNSi 337 Proso millet - TNPm 238 & TNPm 252 Kodo millet – TNPsc 176 & TNPsc 262	-

Table 1.4. Training programmes organised and other initiatives taken for popularization of small millets under STC (TSP) programme

Centre	No. Training programmes	Participants		Total	Any other information
		Female	Male		
Athiyandal	5	35	85	120	Farmers need intensive training on processing, marketing and value addition

Table 1.5. Measures/initiatives taken for processing and value addition

Centre	Specialities created/equipment supplied	No. Training programmes	Participants		Total	Any other information
			Female	Male		
Athiyandal	Primary Processing Unit	1	20	44	64	- Farmers should selling rice of small millets - Farmers started consuming rice of small millets

Table 1.6. Impact of STC (TSP) programme on area, production and productivity of millets in the district/state for last 5 years

S.N	Particulars	Years				
		2016-17	2017-18	2018-19	2019-20	2020-21
1	Area (ha.)	40	5	30	30	30
2	Production (Kg/Qtls)					
	a)Improved practices/FLD	62	7.8	47.7	48	45
	b)Farmers practices	57	7	44	44	65
3	Productivity (Kg/ha)					
	a)Improved practices/FLD	1556	1575	1590	1605	1625
	b)Farmers practices	1478	1470	1475	1480	1475
4	Any entrepreneurship development	-	-	Primary Processing Unit	Primary Processing Unit	-

Table 1.7. Present area and production of millets in the state for last 10 years

Years	Area (ha.)		Production (Qtl./ha)		Productivity (Qtl./ha)	
	FM	Other millets	FM	Other millets	FM	Other millets
2010-11	75650	-	171096	-	2262	-
2011-12	82805	-	224862	-	2716	-
2012-13	70294	-	138011	-	1963	-
2013-14	118699	-	362343	-	3053	-
2014-15	104426	-	349628	-	3348	-
2015-16	89986	31286	282054	37031	3132	-
2016-17	61362	23600	114429	20805	1865	-
2017-18	-	-	-	-	-	-
2018-19	-	-	-	-	-	-
2019-20	-	-	-	-	-	-

(Season and Crop Report of Tamil Nadu 2016-17)

Other pertinent information

- Small millets are new sown with intercrops like Red gram, Garden pea, cluster bean, castor etc.,
- Farmers expect training on mechanization of small millets cultivation
- Need training for Organic cultivation of small millets, processing and value addition

Table 1.7. Present area and production of millets in the state for last 10 years

Years	Area (ha.)		Production (Tonnes/ha)		Productivity (kg/ha)	
	FM	Other millets	FM	Other millets	FM	Other millets
2010-11	75650	-	171096	-	2262	-
2011-12	82805	-	224862	-	2716	-
2012-13	70294	-	138011	-	1963	-
2013-14	118699	-	362343	-	3053	-
2014-15	104426	-	349628	-	3348	-
2015-16	89986	31286	282054	37031	3132	-
2016-17	61362	23600	114429	20805	1865	-
2017-18	-	-	-	-	-	-
2018-19	-	-	-	-	-	-
2019-20	-	-	-	-	-	-

(Season and Crop Report of Tamil Nadu 2016-17)

3. Implementation of STC (TSP) at Dindori, Madhya Pradesh

At Dindori, the demonstrations in farmers field in 30 ha (kodo millet-15 & little millet 15 ha) area with improved practices (Table 2.1) indicated that there was an increase of 58.83 per cent grain yield and the B: C ratio was 2.62 for improved practice, where as it was 1.35 for farmers practice in kodo millet.. Demonstrations in farmers field in 15 ha area in little millet indicated that there was an increase of 45.90 per cent increase in grain yield and the B:C ratio was 1.97 for improved practice, where as it was 1.33 for farmers practice (Table 2.2). Five training programmes were organised for popularization and creating awareness on processing and value addition of small millets (Table 2.4 & 2.5). STC (TSP) implementation resulted in increase in area and production of small millets (Table 2.6) and productivity of small millets (Table 2.7)

Table 2.1. Details of the demonstrated practices and farmer's practice in STC (TSP) during 2020-21

S.No	Name of Input	Demonstrated Practice	Farmer's Practice
Agronomic practices			
1	Improved variety	Kodomillet-JK-137 Littlemillet-JK-4	Local varieties of KM & LM
2	Method of sowing	Line Sowing & Broadcasting	Only Broadcasting
3	Spacing	25cm X 7.5cm in line sowing	-
4	Plant nutrients	40:20:10 NPK kg/ha	No use of any manure or Plant nutrients
Plant protection			
	(i) Seed treatment	Carbendazime 1g & Thirum 2g per kg of seed rate Imidaclopride 3 ml/10 lt.	-
	(ii) Weedicide	2- 4 D Na salt 80% WP@ 0.5 kg a.i./ha(post E)	-
	(iii) Insecticide	Chlorpyrifos 2ml/lt	-
	iv) Fungicide	Trichoderma viridi @ 5kg/ha soil treatment before sowing	-
Harvesting & threshing			
	Harvesting	By sickle	By sickle
	Threshing	By Bullocks	By Bullocks

Table 2.2. Results of Improved practices under STC (TSP) during Kharif 2020-21

S. No.	Crop	Grain yield (q ha ⁻¹)		Fodder yield (q ha ⁻¹)		Cost of cultivation (Rs.ha ⁻¹)		Gross return (Rs.ha ⁻¹)		Net return (Rs.ha ⁻¹)		B:C ratio	
		IP/FLD	FP	IP/FLD	FP	IP/FLD	FP	IP/FLD	FP	IP/FLD	FP	IP/FLD	FP
01	KM	17.44	7.18	25.11	9.47	20000	16000	52312	21524	32312	5524	2.62	1.35
02	LM	11.24	6.08	18.88	8.76	20000	16000	39323	21266	19323	5266	1.97	1.33

Note: IP= Improved practices; FP= Farmer's practice,

Table 2.3. Material generated/tested/quality seed produced under STC (TSP) during Kharif 2020-21

S.N	Particulars	Name of crop	Quantity
1	Germplasm and Breeding lines evaluated (Nos)	-	-
2	Entries tested in multi-location trials (Nos)	-	-
3	Varieties identified by Identification Committee (Nos)	-	-
4	Breeders seed produced (Kg)	-	-
5	New technologies developed and tested (Name of technology & numbers)	Variety tested (DLM-95) New Soil treatment- <i>Trichoderma viridi</i> Seed Treatment- <i>Imidacloprid</i> Weed Control-2-4 D Na Salt Nutrient Management-	10 75 75 75 75

Table 2.4. Training programmes organised and other initiatives taken for popularization of small millets under STC (TSP) programme during 2020-21

Centre	No. Training programmes	Participants		Total	Any other information
		Female	Male		
Dindori (MP)	03	132	286	415	Distribution of small millets literatures in exhibition and publicity at <i>local hatt (weekly market day) at Bajag and Chada in Dindori Distt.of MP.</i>

Table 2.5. Measures/initiatives taken for processing and value addition (2020-21)

Centre	Specialities created/equipment supplied	No. Training programmes	Participants		Total	Any other information
			Female	Male		
Dindori (MP)	Installation of newly developed Millet Processing Machine individually and/or cooperative basis.	02	83	113	196	Training on different recipe of small millets (Kodo & little millet popping, Laddoo, Biscuit, pisum, bread, pav, etc. and awareness programme for installation of newly developed Millet Processing Machine individually and/or cooperative basis under Nutritive Poshan Mah September, 2020

Table 2.6. Impact of STC (TSP) programme on area, production and productivity of millets in the district/state for last 5 years

A. (KODO MILLET)

S.N	Particulars	Years				
		2016-17	2017-18	2018-19	2019-20	2020-21
1	Area (ha.)	20	-	17	13	15
2	Production (q)					
	a) Improved practices/FLD	623.60	273.60	245.14	240.75	261.6
	b) Farmers practices	309.20	145.40	133.28	133.8	107.7
3	Productivity (Qtl/ha)					
	a) Improved practices/FLD	15.59	13.68	14.42	16.05	17.44
	b) Farmers practices	7.73	7.27	7.84	8.92	7.18
4	Any entrepreneurship development	-	-	-	-	The farm women have form SHG's and preparing different recipes of small millets (popping, Laddoo, Biscuit, pisum, bread, pav, etc)

B .(LITTLE MILLET)

S.N	Particulars	Years				
		2016-17	2017-18	2018-19	2019-20	2020-21
1	Area (ha.)	10	8.5	16	12	15
2	Production (q)					
	a)Improved practices/FLD	108.20	91.885	171.20	186.24	168.6
	b)Farmers practices	53.70	49.895	92.80	82.80	91.2
3	Productivity (Qtl/ha)					
	a)Improved practices/FLD	10.82	10.81	10.70	15.52	11.24
	b)Farmers practices	5.37	5.87	5.80	6.90	6.08
4	Any entrepreneurship development	-	-	-	-	The farm women have form SHG's and preparing different recipes of small millets (popping, Laddoo, Biscuit, pisum, bread, pav,etc)

Table 2.7. Present area and production of millets in the state for last 10 years

Years	Area (000 ha.)		Production (000 tonnes)		Productivity (kg./ha)	
	FM	Other millets	FM	Other millets	FM	Other Millets
2010-11		248		82		329
2011-12		226		76		333
2012-13		233		85		364
2013-14		227.7		115		503
2014-15		123		72		585
2015-16		180		80		444
2016-17		184		115		625
2017-18		160		109		681
2018-19		179		123		689
2019-20		188		119	-	655
2020-21		186		-		

4. Implementation of STC (TSP) at Jagdalpur, Chhatishgarh

At Jagdalpur the demonstrations in farmers field in 60 ha area with improved practices (Table 3.1) in Finger Millet (IR-01, CG Ragi 02), Kodo Millet (IK-01, CG Kodo 02), Little millet (CG Kutki 01, CG Kutki 02) for popularization of improved varieties of small millets. The results of the FLD demonstrations in finger millet accounted higher grain yield and BC ratio compare to the farmers practices (Table 3.2). Three training programmes were organised for popularization and creating awareness on processing and value addition of small millets (Table 3.3). Impact of STC (TSP) Implementation resulted in increase in production and productivity of small millets of tribal farmers (Table 3.5).

Table 3.1. Details of the demonstrated practices and farmer's practice in STC (TSP) during Kharif 2020

S.No	Name of Input	Demonstrated Practice	Farmer's Practice
Agronomic practices			
1	Improved variety	Yes	Local variety
2	Method of sowing	Line sowing	Broadcasting
3	Spacing	22.5 x 10 cm	random panting
4	Plant nutrients	Recommended dose provided	a few quantity
Plant protection			
	(i) Seed treatment	Yes	No
	(ii) Weedicide	As per need	No
	(iii) Insecticide	As per need	No
	iv) Fungicide	As per need	No
Harvesting & threshing			
	Harvesting	By improved sickle	By local sickle
	Threshing	Mechanical thrashing	By bullock drawn

Table 3.2. Results of Improved practices under STC (TSP) during Kharif 2020 (Finger millet)

S No	Centre	Grain yield		Fodder yield (q ha ⁻¹)		Cost of cultivation (Rs.ha ⁻¹)		Gross return (Rs.ha ⁻¹)		Net return (Rs.ha ⁻¹)		B:C ratio	
		IP/FLD	FP	IP/FLD	FP	IP/FLD	FP	IP/FLD	FP	IP/FLD	FP	IP/FLD	FP
01	Jagdalpur	17.77	5.18	45.40	13.62	15332	9350	46695	13631	31363	4281	3.05	1.46

Note: IP= Improved practices; FP= Farmer's practice,

Table 3.3. Training programmes organized and other initiatives taken for popularization of small millets under TSP/NEH programme

Centre	No. Training programmes	Participants		Total	Any other information
Jagdalpur	03	Female	Male	90	-
		15	75		

Table 3.4. Impact of TSP/NEH programme on area, production and productivity of millets in the district/state for last 5 years

S.N	Particulars	Years				
		2016-17	2017-18	2018-19	2019-20	2020-21
1	Area (ha.)	20	10	40	30	60
2	Production (Qtls)					
	a)Improved practices/FLD	301	120	311	227	1067
	b)Farmers practices	142	60	30	21	311
3	Productivity (Kg/ha)					
	a)Improved practices/FLD	15.05	11.77	7.78	7.55	17.77
	b)Farmers practices	7.09	5.80	0.76	0.69	5.18
4	Any entrepreneurship development	-	-	-	-	-

Table 3.5: Present area and production of millets in the state for last 10 years

Years	Area (Tousand ha.)	Production (thousand tonns)	Productivity (Qtl./ha)
2011-12	14.64	07.62	5.21
2012-13	15.09	09.28	6.15
2013-14	16.01	10.08	6.30
2014-15	14.01	8.96	6.40
2015-16	13.86	9.10	6.60
2016-17	17.41	12.59	7.23
2017-18	17.74	13.31	7.50
2018-19	17.54	13.86	7.90
2019-20	9.11	7.18	7.88
2020-21	9.50	9.93	10.45

- Data received from state department of agriculture, DDA, Jagdalpur

5. Implementation of STC (TSP) at Mandya, Karnataka

The demonstrations in farmers field in 30 ha area in finger millet (Indaf 7) with improved practices (Table 4.1) indicated that there was an increase of 30.85 per cent grain yield and the B: C ratio was 2.68 for improved practice, where as it was 1.17 for farmers practice. Three training programmes were organised for popularization and creating awareness on processing, value addition and health benefits of small millets (Table 4.4 & 4.5). TSP implementation resulted in increase in production and productivity of finger millet in tribal areas (Table 4.6).

Table 4.1. Details of the demonstrated practices and farmer's practice in STC (TSP) during Kharif 2020

S.No	Name of Input	Demonstrated Practice	Farmer's Practice
Agronomic practices			
1	Improved variety	Indaf-7	Local varieties
2	Seed rate	12.5 Kg/Ha	25 Kg/Ha
3	Method of sowing	Seed drill and Transplanting	Broadcasting
4	Spacing	30x10 cm	Not maintained
5	Plant nutrients	40:20:20 Kg/acre	Not maintained
6	Microbial Consortia	1 Kg/acre	Not used
7	Intercultivation	Through intercultivator / cycle weeder	Hand weeding
Plant protection			
	(i) Seed treatment	-	-
	(ii) Weedicide	-	-
	(iii) Insecticide	-	-
	iv) Fungicide	-	-
Harvesting & threshing			
	Harvesting	Hand Picking of ear	Manual Method
	Threshing	Mechanical method	Manual Method

Table 4.2. Results of Improved practices under STC (TSP) during Kharif 2020

S. No	Centre	Grain yield (q ha ⁻¹)		Fodder Yield (q ha ⁻¹)		Cost of cultivation(Rs.ha ⁻¹)		Gross return(Rs.ha ⁻¹)		Net return(Rs.ha ⁻¹)		B:C ratio	
		IP/FLD	FP	IP/FLD	FP	IP/FLD	FP	IP/FLD	FP	IP/FLD	FP	IP/FLD	FP
1.	Nagapura village, Hunsur taluk, Mysore District	29.85	20.64	56.12	42.19	28310.27	33310.27	103953.54	72376.50	75643.28	39066.23	2.68	1.17

Note: IP= Improved practices; FP= Farmer's practice,

Table 4.3. Material generated/tested/quality seed produced under STC (TSP) during Kharif 2020

S.N	Particulars	Name of crop	Quantity
1	Germplasm and Breeding lines evaluated (Nos)	-	-
2	Entries tested in multi-location trials (Nos)	-	-
3	Varieties identified by Identification Committee (Nos)	-	-
4	Breeders seed produced (Kg)	-	-
5	New technologies developed and tested (Name of technology & numbers)	-	-

Table 4.4. Training programmes organised and other initiatives taken for popularization of small millets under STC (TSP) programme

Centre	No. Training programmes	Participants		Total	Any other information
		Female	Male		
Nagapura village, Hunsur taluk, Mysore District	1	17	44	61	Training program on Introduction of finger millet cultivation
Nagapura village, Hunsur taluk, Mysore District	1	27	66	93	Adaptation of package of practices for finger millet cultivation

Table 4.5. Measures/initiatives taken for processing and value addition

Centre	Specialities created/equipment supplied	No. Training programmes	Participants		Total	Any other information
			Female	Male		
Nagapura village, Hunsur taluk, Mysore District	-	1	27	66	93	Information on value added products from ragi

Table 4.6. Impact of TSP/NEH programme on area, production and productivity of millets in the district/state for last 5 years

S.N	Particulars	Years				
		2016-17	2017-18	2018-19	2019-20	2020-21
1	Area (ha.)	52	20	60.5	46.4	30
2	Production (Qtls)					
	a)Improved practices/FLD	1692.00	450.00	2098.70	1510.70	895.50
	b)Farmers practices	1267.70	340.20	1607.40	1128.90	619.20
3	Productivity (Kg/ha)					
	a)Improved practices/FLD	3254	2250	3469	3256	2985
	b)Farmers practices	2438	1701	2657	2433	2064
4	Any entrepreneurship development	-	-	-	-	-

Table 4.7. Present area and production of millets in the state for last 10 years

Years	Area (ha.)		Production (Qtl./ha)		Productivity (Qtl./ha)	
	FM	Other millets	FM	Other millets	FM	Other millets
2011-12	679.9		11.52		1784	
2012-13	642.8		8.57		1404	
2013-14	686.2		12.02		1845	
2014-15	708.0		12.98		1833	
2015-16	705.7		11.88		1773	
2016-17	598.7		4.91		864	
2017-18	777.8		15.68		2122	
2018-19	NA		NA		NA	
2019-20	NA		NA		NA	
2020-21	NA		NA		NA	

6. Implementation of STC (TSP) at Vizianagaram, Andra Pradesh

Two small millets viz., finger millet (VR-988, VR-929, VR-847) and brown top millet (GPUBT-6) were demonstrated with improved practices with suitable varieties of respective crops (Table 5.1 & 5.2) at Vizianagaram in farmers field in 568 ha area. The demonstration with improved practices indicated that there was an increase in grain yield and the B: C ratio of in improved practices. Several training programmes were organised for popularization and creating awareness on processing, value addition and nutritional benefits of small millets (Table 5.4 & 5.5) and processing unit was established at Agricultural Research Station, Vizianagaram and Processing of millets is being done to the tribal farmers at free of cost. . STC(TSP) implementation resulted in increase in production and productivity of millets.

Table 5.1. Details of the demonstrated practices and farmer's practice in STC (TSP)

S.No	Name of Input	Demonstrated Practice	Farmer's Practice
Agronomic practices			
1	Improved variety	VR-988, VR-929, VR-847, GPUBT-6	Local varieties of finger millet or kept the land fallow
2	Method of sowing	Line sowing/transplanting	Broadcasting
3	Spacing	30cmX10cm	No spacing
4	Plant nutrients	60-40-30kg NPK/ha along with FYM application @10t/ha	No use of fertilizers. Organic manures were applied in some fields
Plant protection			
	(i) Seed treatment	Seed treatment was done with carbedazim	No seed treatment
	(ii) Weedicide	Hand weeding at 15DAS and at 30DAS	No pre emergence application of weedicide Hand weeding at 25-35DAS
	(iii) Insecticide	Based on the need	Based on the need
	iv) Fungicide	<i>Pseudomonas fluorescens</i> + <i>Trichoderma asperellum</i> + <i>Bacillus subtilis</i> @1kg each talc formulation for banded blight control	-
Harvesting & threshing			
	Harvesting	Manual method	Manual method
	Threshing	Manual or with tractor	Manual

Table 5.2. Results of Improved practices under STC (TSP) during Kharif 2020
Finger millet:

S. No.	Cent	Grain yield (q ha ⁻¹)		Fodder yield (q ha ⁻¹)		Cost of cultivation (Rs.ha ⁻¹)		Gross return (Rs.ha ⁻¹)		Net return (Rs.ha ⁻¹)		B:C ratio	
		IP/FL	FP	IP/FL	FP	IP/FLD	FP	IP/FLD	FP	IP/FLD	FP	IP/FL	FP
1	ARS, Vizianagaram	VR-988 27.4	16.2	53.3	42.7	26330.89	18310.13	90283.00	53379.00	63952.11	35068.87	2.43	1.92
		VR 929 28.3	15.8	57.8	46.3	26331.50	18310.13	93248.50	52061.00	66917.00	33750.87	2.54	1.84
		VR 847 25.4	15.2	48.9	42.9	26331.50	18310.13	83693.00	50084.00	57361.50	31773.87	2.18	1.74

Brown top millet:

S. No.	Cent	Grain yield (q ha ⁻¹)		Fodder yield (q ha ⁻¹)		Cost of cultivation (Rs.ha ⁻¹)		Gross return (Rs.ha ⁻¹)		Net return (Rs.ha ⁻¹)		B:C ratio	
		IP/FLD	FP	IP/FL	FP	IP/FLD	FP	IP/FLD	FP	IP/FLD	FP	IP/FL	FP
1	ARS, Viz	GPUBT-6 27.4	16.2	76.6	68.5	24812	18310.13	54250	32900	29438	14589.87	1.19	0.80

Note: IP= Improved practices; FP= Farmer's practice,

Table 5.3. Material generated/tested/quality seed produced under STC (TSP) during Kharif 2020

S.N	Particulars	Name of crop	Quantity
1	Germplasm and Breeding lines evaluated (Nos)	-	-
2	Entries tested in multi-location trials (Nos)	-	-
3	Varieties identified by Identification Committee (Nos)	-	-
4	Breeders seed produced (Kg)	-	-
5	New technologies developed and tested (Name of technology & numbers)	1. Popularization of finger millet in rice fallow lands 2. Ecofriendly management of banded blight : (The soil application of <i>Pseudomonas fluorescens</i> + <i>Trichoderma asperellum</i> + <i>Bacillus subtilis</i> @1kg each talc formulation mixed in 25 kg FYM or vermicompost incubated for 15 days)	10ha 15ha

Table 5.4. Training programmes organised and other initiatives taken for popularization of small millets under STC (TSP) programme

Centre	No. Training programmes	Participants		Total	Any other information
		Female	Male		
Agricultural Research station, Vizianagar	5	120	70	190	Nil

Table 5.5. Measures/initiatives taken for processing and value addition

Centre	Specialities created/equipment supplied	No. Training programmes	Participants		Total	Any other information
			Female	Male		
ARS, Vizianagar	Hands on training programmes on Value addition and processing were organized to the tribal women.	3	65	10	75	-

Table 5.6. Impact of STC (TSP) programme on area, production and productivity of millets in the district/state for last 5 years

S.N	Particulars	Years				
		2016-17	2017-18	2018-19	2019-20	2020-21
1	Area (ha.)	156	178	205	444	568
2	Production (Kg/Qtls)					
	a)Improved practices/FLD	3980	4585	5250	11100	15353
	b)Farmers practices	2840	3200	3590	4230	5040
3	Productivity (Kg/ha)					
	a)Improved practices/FLD	2551	2576	2561	2641	2703
	b)Farmers practices	1821	1798	1751	1839	1573

4	Any entrepreneurship development	10	14	21	32	10
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Table 5.7. Present area and production of millets in the state for last 10 years

Years	Area (ha.)		Production (tons)		Productivity (Qtl./ha)	
	FM	Other millets	FM	Other millets	FM	Other millets
2011-12	42000	29000	40000	29000	9.52	10.00
2012-13	39000	37000	42000	360.00	10.77	9.72
2013-14	41900	28000	43000	220.00	10.27	7.86
2014-15	33000	20000	34000	140.00	10.30	7.00
2015-16	32000	51000	34000	490.00	10.63	9.61
2016-17	32000	31000	35000	240.00	10.94	7.74
2017-18	35.00	21000	44700	160.00	12.77	7.62
2018-19	37000	13000	43140	60.00	13.48	4.62
2019-20	38000	-	44000	-	13.20	-
2020-21	-	-	-	-	-	-

7. Implementation of STC (TSP) at Waghai, Gujarat

Front line demonstration were conducted 200 ha Little millet new variety (GNV-3), 323 farmers were benefited (0.62 ha. each). The demonstrated practices (Table 6.1) accounted higher grain yield as evidenced by 38.31 per cent increase in grain yield and BC ratio was 2.22 in demonstrated plot as against 1.15 in farmers practices. Eighteen Training / Skill development/ capacity building programme were conducted along with exhibitions/ exposure for popularization and creating awareness on processing, value addition and nutritional benefits of small millets (Table 6.4 & 6.5).

Table 6.1. Details of the demonstrated and farmer's practice in TSP/ NEH.

S.No	Name of Input	Demonstrated Practice	Farmer's Practice
Agronomic practices			
1.	Improved variety	GNV-3	Local variety
2.	Method of sowing	Transplanting	Seedling by trough
3.	Spacing	30 x 10 cm	Not followed
4.	Plant nutrients	40:20:0	NIL
Plant protection			
	(i) Seed treatment	NIL	NIL
	(ii) Weedicide	Hand Weeding (2)	NIL
	(iii) Insecticide	NIL	NIL
	iv) Fungicide	Azotobacter Biofertilizer	NIL
Harvesting & threshing			
	Harvesting	Manually	Manually
	Threshing	Manually	Manually

Table 6.2 Results of Improved practices under TSP during Kharif, 2020.

S. No.	Centre	Grain Yield (q ha ⁻¹)		Fodder Yield (q ha ⁻¹)		Cost of Cultivation (Rs.ha ⁻¹)		Gross Return (Rs.ha ⁻¹)		Netreturn (Rs.ha ⁻¹)		B:C ratio	
		IP/FLD	FP	IP/FLD	FP	IP/FLD	FP	IP/FLD	FP	IP/FLD	FP	IP/FLD	FP
1.	Hill Millet Research Station, NAU, Waghai,	17.67	10.90	52.22	35.04	18629	17656	59832	37768	41203	20112	2.22	1.15

Gujarat												
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Note: IP= Improved practices; FP= Farmer's practice,

Table 6.3. Material generated/tested/quality seed produced under TSP during Kharif, 2020.

S.N	Particulars	Name of crop	Quantity
1.	Germplasm and Breeding lines evaluated (Nos)	NIL	NIL
2.	Entries tested in multi-location trials (Nos)	NIL	NIL
3.	Varieties identified by Identification Committee (Nos)	NIL	NIL
4.	Breeders seed produced (Kg)	NIL	NIL
5.	New technologies developed and tested (Name of technology & numbers)	Little millet new variety tested var. GNV-3	1000 kg(200 hac. @ 5 kg per hac seed rate)

Table 6.4. Training programmes organised and other initiatives taken for popularization of small millets under TSP programme.

Centre	No. Training programmes	Participants		Total	Any other information
		Female	Male		
Hill Millet Research Station, NAU, Waghai, Gujarat	18	866	631	1497	Training / Skill development/ capacity building programme conducted along with Exhibitions/ Exposure visits organised

Table 6.5. Measures/ initiatives taken for Processing and Value addition.

Centre	Specialities created/ equipment supplied	No. Training programmes	Participants		Total	Any other information
			Female	Male		
Hill Millet Research Station, NAU, Waghai, Gujarat	NIL	4	124	201	325	Facilities will be created & processing equipment will be supplied in next year.

Table 6.6. Impact of TSP programme on area, production and productivity of millets in the district/ state for last 5 years.

S.N	Particulars	Years				
		2016-17	2017-18	2018-19	2019-20	2020-21
1.	Area (ha.)	--	--	--	--	32610
2.	Production (Kg/OtIs)					
	a) Improved practices/ FLD	--	--	--	--	50570
	b) Farmers practices	--	--	--	--	31550
3.	Productivity (Kg/ha)					
	a) Improved practices/FLD	--	--	--	--	1550
	b) Farmers practices	--	--	--	--	967

4.	Any entrepreneurship development	--	--	--	--	--
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Table 6.7. Present area and production of millets in the state for last 10 years.

Years	Area (ha.)		Production (Qtl./ ha)		Productivity(Qtl./ ha)	
	FM	Other millets	FM	Other millets	FM	Other millets
2011-12	--	--	--	--	--	--
2012-13	31255	10278	44333	8887	1418	865
2013-14	30566	9855	42580	7865	1393	798
2014-15	30540	8695	42250	7650	1383	880
2015-16	28544	7350	38250	7260	1340	988
2016-17	27650	7800	37650	7450	1362	955
2017-18	26450	7540	36580	7565	1383	1003
2018-19	25655	7200	38550	7950	1503	1104
2019-20	24890	7655	39450	8145	1585	1064
2020-21	24760	7850	42050	8520	1698	1085

8. Success stories/ entrepreneurship developments documented due to intervention of TSP Programme

8.1. Athiyandal

- Primary Processing Unit installed at Nilavoor, village of Yelagiri hills. The small millets growing farmers group in the name of “Yelagirimalai Malayali Vivasaya Sangam”, which contains 20 tribal farmers as group members.

8.2.Dindori

The small millets have been the last priority crops in the agriculture development agenda in the country. The kodo and little millet among small millets have received a little more attention than the rest, especially in Madhya Pradesh due to no other options in some pockets with very poor, degraded, sloppy and gravelly soils, where no other crop can thrive. The reasons for decline in area & production in these areas are attributed to be outcome of combination of facts like;

1. Traditional varieties
2. Traditional package of practices
3. Poor Soils
4. Low productivity
5. Low remuneration
6. Subsidized supply of fine cereals through P.D.S
7. Change in consumer's personal preferences due to;
 - a. Difficulty in processing
 - b. Low shelf life of flour and
 - c. Low social status of small millet
8. Low cropping intensity of area under these crops due to poor soils.

Likewise, the farmers have either switched over to more remunerative crops or keeping their fields' fallow 4-5 years, resulting in decline in area. With the launch of Extension activities in the form of FLD's, TSP's, Training programmes and awareness campaigns, the TOT programme was initiated with the objective to increase area, production and productivity through awakening awareness among farmers of remote tribal area (about 80% tribal) at Bajag block of Distt. Dindori.

The contribution of the centre in the form of FLD's & TSP has been worth appreciation and duly been acknowledged by QRT 2013-18. The FLD's on Kodo & Kutki Millets are being taken in the remote tribal villages of District Dindori since 2013-14. The tribal's of target area had seldom received any technical & input support of improved production technology and were carrying out their traditional cultivation practices; likewise the productivity was too low and inadequate to meet their requirements. With the onset of TSP project in the area, the first and foremost priority identified was replacement of seed; because the farmer's traditional varieties were extremely poor in productivity. The varietal replacement played miracle and the farmers received a 60-100 % hike in their productivity. This incremental productivity encouraged the participating and non participating farmers, because all of them shared the improved varieties and enjoyed the higher productivity of crops. There is a blanket spread of improved varieties all over.

Apart from this, the farmers are also been technically strengthened with awareness of improved production technology through organization of training programmes. Under TSP, the poor tribal farmers were also provided with necessary farm equipments/implements viz Bullock drawn seed drill, wheel hoe, khurpi and sprayers for their convenience of farm operations/ interculture. The farmers have realized the importance of these equipments and started proper methods of sowing, interculture & plant protection in their fields. While assessing the impact of TSP in District Dindori the incremental pattern of farming situation is depicted in increased area and productivity over the period of four years i.e. from 3.42q/ha to 7.98 q/ha which comes to be about 133.3%. The impact is encouraging and need a follow-up to ascertain continuity of farmer's zeal & habit to practice improved production technology in future also. The contribution of TSP in increasing area production and productivity of small millets in the Tribal area of Distt Dindori is worthwhile to rank as a great success in achieving the mandate assigned to the centre.

8.3 Jagdalpur

Previous status of farmer

1) Mr. Mosu ram was a marginal farmer of village Bastanar, Block Bastanar, District Bastar. Earlier he used to grow *desi* rice, some millets and other crops in unscientific manner. Due to poor financial status and lack of education and technical knowhow, he was not getting proper crop harvest. Although, Government had under taken many schemes to improve the living status of these villagers, the significant response was not being seen. The main reason behind the uneconomic agriculture of this block was the low rainfall, low water holding capacity, poor soil fertility, improper crop selection etc. The most important issue with upliftment of these tribal farmers was legacy attachment i.e. they didn't want to adopt other crops and high value technology (unknown to them) and willingness to work, upto certain extent.

Problems identified: Alongwith technical expert, scientific body and local villagers, an intensive survey was conducted to identify the major problems of farmers and also to select the target area which fits best with the scope of our project. We organised several visits of different villages, sat with them and discuss their need and barriers to achieve them.

The following project related issues sorted out...

- Uneven distribution of Monsoon
- Lack of suitable cultural practices in crop season
- Lack of quality seeds

Intervention and impact of TSP programme: As per rural-economical-agricultural survey we devised our plan with three main components i.e. crop demonstration, training for improved cultivation and processing and provision of marketing platform. Mosu ram was given demo of finger millet, kodo millet and little millet. He not only eagerly took and adopted the theme but also inspired other farmers to cultivate and go-through with the project.

Total cultivated area increased – earlier he used to cultivate on 2-5 acres. Now he is cultivating more than 100 acres (by taking lease of other farmers land).

Future plan of farmer: The farmer is convinced and happy with the initiation of SGCARS, Jagdalpur, IGKV, Raipur; funded by SRLM, CG State Govt. He is planning to take more production of millet crops, expand the market to other states and stakeholder and spread out the value added products of his self help groups.

2) Previous status of farmer

Kartik was a young and enthusiastic farmer of village Karkakpara, Block Tirathgarh, District Bastar. Due to poor financial status and technical knowhow, he was not getting proper crop harvest from his traditional package of practice. Agriculture department and other Government agencies had undertaken many schemes to improve the agriculture pattern of this village; the significant response was not being seen. The main reason behind the uneconomic agriculture of this block was the low water holding capacity, poor soil fertility, improper crop selection etc. The most important issue with upliftment of these tribal farmers was legacy attachment i.e. they didn't want to adopt other crops and high value technology (unknown to them) and willingness to work, upto certain extent. Further involvement of young blood towards agriculture was the greatest challenge.

Problems identified: Our team, comprised of technical expert, scientific body and local villagers, organised an intensive survey to sort out the major problems of farmers (of our concern) and also to select the target area with the scope of our project. We organised several visits of different villages, sat with them and discuss their need and barriers to achieve them.

The following project related issues sorted out...

- Uneven distribution of Monsoon which hinders the crop choice
- Lack of contingent crop (if monsoon fails) and suitable cultural practices in crop season
- Lack of quality seeds

Intervention and impact of TSP programme: Pursuing the rural-economical-agricultural status of the farmer we focussed our plan with two crops i.e. Finger and Kodo millet and two components i.e. crop demonstration and training for improved cultivation and provision of marketing platform. We demonstrated improved package and practice of finger millet and kodo millet. He not only eagerly took and adopted the theme but also inspired other farmers to cultivate and go-through with the project. Meanwhile, he and other farmers of the village were called to participate in the buyers and sellers meet organised by Shaheed Gundadhoor College of Agriculture and Research Station, Jagdalpur, Chhattisgarh.

Total cultivated area increased – earlier he used to cultivate on 3-4 acres. Now he is cultivating more than 20-30 acres (by taking lease of relatives and other farmers land)

Increased crop yield – due to supply quality seed

Future plan of farmer: Kartik (the farmer) is planning to go with mechanised agriculture like seed drill, for sowing etc., and also he is opting organic cultivation, so as to get maximum profit from his labour. Growing of vegetable is also one of his possible future interventions. From Government and Agriculture University side, he wants that improvement of soil fertility and modern agriculture should be focussed so that young farmers can prefer agriculture as profitable sector.

8.4. Vizianagaram

Agricultural Research Station, Vizianagaram has trained 75 people on preparation of millet based value added products like millet-groundnut biscuits, millet laddu, millet murukulu, millet malt, readymade millet dosa mix, etc. Out of 75 people, ten women trainees started commercial production of these millet products and selling through the retail shop established by the FPO 'Arogya Millet Producing Company Ltd' at Kothavalasa of Vizianagaram.

9. Conclusion

In present era, climate changes, water scarcity, increasing world population, rising food prices and other socio-economic impact are expected to generate a great threat to agriculture and food security worldwide, especially for the poorest people who lived in arid and semi-arid regions. These impacts present a challenge to scientist to investigate the possibilities of producing, processing, and utilizing other potentials food sources to end hunger and poverty. Cereal grains are the most important source of the world's food and have a significant role in the human diet throughout the world. Tribal farmers in major tribal areas of districts viz., Andra Pradesh, Chhatisgrah, Karnataka, Madhya Pradesh, Gujarat and Tamil Nadu has been facing the ramification of chronic problems of low crop productivity, food and nutritional insecurity, population explosion, poverty and resource shrinkage, degradation and damage. To counter this problem in tribal areas of these states, ICAR-IMR, Hyderabad and Project Coordinating unit (Small Millets) has initiated the step towards the introduction millets for cultivation and consumption as one of the better option in selected regions of tribal areas. Popularization of small millets in this region is important to uplift the economic level of the farmers as well as food and nutritional security. ICAR, Project coordinating unit (Small Millets)- STC (TSP) Programme resulted in introduction latest varieties and improved technologies of small millets viz., finger millet, foxtail millet, little millets, barnyard millet, proso millet and browntop millet by facilitating small millets cultivation by providing improved variety, equipments /implements, machineries and required inputs. Thus STC (TSP) programme resulted in increase in grain yield about 25-30 per cent and also created awareness on importance and health benefits of millets among the tribal farmers. Therefore, tribal farmers motivated for cultivation and consumption of small millets in tribal areas.

10. Annexure I: Details of collaborator

Sl.No	Centre	Collaborator, Address
1	Athiyandal	Dr. M. Rajesh, Asst. Professor (Plant Pathology), Centre of Excellence, TNAU, Athiyandal -606 603 , Tiruvannamalai District (TN)
2	Dindori	Dr. O.P. Dubey, Agronomist (Millets) & Officer In-charge. AICRP on Small Millets, Tribal Agricultural Research, Station, Dindori- 481 880, Madhya Pradesh
3	Jagdalpur	Dr. Prahlad Netam, Jr. Pathologist, Zonal Agril. Research Station, Kumharwand Farm, Jagdalpur – 494 005, Chhattisgarh
4	Mandya	Dr. H. R. Raveendra, Jr. Pathologist, Zonal Agril. Research Station, V.C. Farm, Mandya- 571 405 (Karnataka)
5	Vizianagaram	Dr. T. Samuel S.K. Patro, SeniorScientist (Pl. Path) & Officer In-charge, Agricultural Research Station, Gajularega, Vizianagaram – 531 001(AP)
6	Waghai	Dr. H. E. Patil, Senior Breeder , Officer In-charge, Hill Millet Research station, Navasari Agricultural University, Waghai –304 730, Dist. Dangs , Gujarat