Impact and performance of NICRA interventions taken up during 2022 & 2023

SHE & CS KRISHI VIGYAM KENDRA, Yagantipalli

Technology Demonstrations in Nandyal District, Andhra Pradesh State

Technology Demonstration component of NICRA

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Objectives

To enhance the resilience of Indian agriculture covering crops, livestock and fisheries to climatic variability and climate change through development and application of improved production and risk management technologies.

To demonstrate site specific technology packages on farmers' fields for adapting to current climate risks

To enhance the capacity building of scientists and other stakeholders in climate resilient agricultural research and its application

Justification for selection of village

- The district Kurnool falls under Scarce Rainfall Zone of Rayalaseema with average annual rainfall of 630 mm.
- The mandal Banaganapalle represents rain shadow area of the district which is most amenable to droughts.
- The rainfall received in the manadal is mostly erratic unevenly distributed with frequent occurrences of prolonged dry spells affecting most of the kharif crops in most of the years.
- A total of 19 farmer of which four suicides are due to failure of bore wells.

- Yagantipalle is one example, where ground water is over exploited, hence declared as NOTIFIED village under APWALTA act, for arresting further drilling of bore wells.

Overview of Problems arising due to climatic challenge and interventions made to cope with the challenge

Climatic Challenge/ Problems	Resulting consequence	Interventions
Fall in water table during summer season	Poor water storage capacity and therefore limited percolation in nearby bore wells and quick drying up of bore wells	Desilting of tank (Burrakunta) to improve water storage & underground water recharge Bore well recharge pits
Low rainfall,Droughts, Dry spells	Low crop yields due to Water scarcity, terminal moisture stress	• In-situ Moisture conservation, • Drought tolerant varieties of Seteria, Redgram & Bengalgram,, Chick pea, • Intercropping • Micro irrigation • Farm ponds

Heat stress and calf mortality	•Reduction in milk production. •Higher calf mortality	Installations of foggers Calf registration programme.
Problematic soils	•Poor yields due to alkalinity of soils.	Reclamation with gypsum as per pH
More firewood burning for cooking	•Environmental pollution •Respiratory problems in women	Establishment of biogas plans
Fodder scarcity mainly in summer	Low milk production Mineral deficiency, Repeat breeding/ infertility	• Utilization of agricultural by products as feed • Regional specific Mineral Mixture • Community fodder bank • Haylage making • Silage making • Hydroponic fodder production

Overview of Problems arising due to climatic challenge and interventions made to cope with the challenge

Module	Climatic Vulnerabilities	Key Interventions
NRM	Low crop yields due to Water scarcity, terminal moisture stress	• In-situ Moisture conservation,Farm ponds, De-silting of tank (Burrakunta) to improve water storage & underground water recharge and Bore well Recharge pits and compost pits • Micro irrigation and water saving technologies
Crop production	• Low yields due to Drought and water scarcity	• Drought tolerant varieties of Seteria, Redgram & Bengalgram • Intercropping • Short duration varieties of sunflower • .

Details about the villages

S.No	Details	Village 1	Village 2	Village 3	Village 4	Village 5
1	Name of the village	Yagantipalle	Meerapuram	Cherlo kotturu	Krishnagiri	Chinnaraj upalem
2	Involved in TDC since (year)	2011	2013	2017	2017	2021
3	Cultivated area (ha)	640	200	260	406	857
4	Rainfed Area (ha)	70% (448 ha)	70% (140ha)	78%(204 ha)	86%(352 ha)	56% (480ha)
5	Flood prone Area (ha)	192	60	56	54	247
6	Irrigated Area (ha)	361	381	161	128	130
7	No. of households in the village	292	217	95	68	55

Activities taken up in NICRA villages during the year

S No	Details	Village 1	Village 2	Village 3	Village 4	Village 5
1	Demonstrations (FST)	FST-1 FST-2 FST-3 FST-4	FST-1 FST-2 FST-3 FST-4	FST-1 FST-2 FST-3 FST-4	FST-1 FST-2 FST-3	FST-1 FST-2
2	Scaling up Technologies scaled up	Insitu moisture conservation, Inter cropping system and DTV(Red gram,bengal gram).	Insitu moisture conservation, Inter cropping system and DTV(Red gram)	Insitu moisture conservation, Inter cropping system and DTV(Red gram)	Insitu moisture conservation, Inter cropping system and DTV(Red gram)	Insitu moisture conservation and DTV(Red gram)

Note:

FST-1 Rain fed without Animals

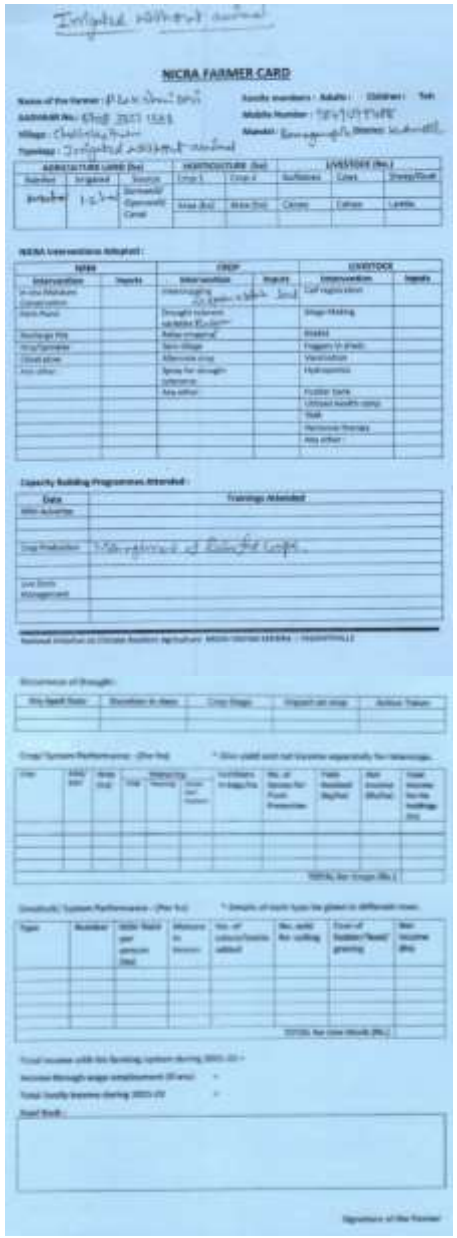
FST-2 Rain fed with Animals

FST-3 Irrigated without animals

FST-4 Irrigated with animals

Rain fed without animal
1

Rain fed with animal
2



Irrigated without animal
3

Irrigated with animal
4

Farm ponds filled with runoff water

Farm Ponds

De-silting of Burrakunta

- Quantity of silt excavated-3060 cu.mt.
- No.of tractor loads of silt:1300
- Area covered-6 ha
- No.of borewells covered under tank:250
- water table raised in borewells-12 ft.

Chemical properties:

pH-7.95: EC:0.35 dSm^{-1} : OC-0.89%

Nutrient status of silt:

Available P: 112 ppm
K ; 883 ppm
Ca: 52 me.eq/100g soil
Mg: 5.5 me.eq/100g soil
Fe ; 33.5 ppm
Cu: 3.62 ppm

Natural Resource management:

Borewell recharge pits: 4
Pit Size: 2x2x2 mt

Recharge pit filled with 40mm stone material(0.6m thickness)at bottom of the pit, then second layer with smaller stone(20mm) for 0.4m thickness, followed by coarse sand (0.3m),fine sand(0.3m) and with coconut coir(0.2m)

Recycling bins

No. of bins constructed- 10
Size of tub:16X8x4 ft.
Compost conserved-110 tonnes/annum
Area covered: 28 ha

Demonstration of Conservation furrows in red gram Kharif

Problem identified : Low and uncertainty of productivity due to recurrent intermittent drought

Intervention : Formation of Conservation furrows in between two rows of Red gram at 30-35 DAS

Number of the farmers involved : 20 no of farmers adopted :60

Interventions	Crop	Variety	Seed yield (kg/ha)	Fodder yield (kg/ha)	Gross cost (Rs./ha)	Gross returns (Rs./ha)	Net returns (Rs./ha)	BC
Farmers practice	Red gram	PRG-176	982	-	31500	61866	30,366.00	1:1.97
Intervention (conservation furrow at 350 to 35 daDAS)	Red gram	PRG-176	1155	-	32000	70765	40765	1:2.27

Demonstration of Conservation furrows in red gram

Formation of Furrows between Redgram rows at 30 to 35 DAS after showing







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Technology Demonstration on
Introduction of Drought tolerant variety
Crop : Bengalgram
Variety : NBeG-1
Season : Rabi-2019


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KRISHI VIGYAN KENDRA
Yagantipalle - 518124, Kurnool Dist., A.P.
Technology Demonstration on
Drought tolerant variety
Crop : Bengalgram
Variety : NBeG-49/47
Season : Rabi-2020


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In-situ Moisture Conservation
Method with
BBF Planter in Bengalgram

Promotion of Nutrigardens for food and nutritional security in NICRA Villages

- Each pack wt: 50gms

Contains 5 greenleafy and 6 other veg seeds

- Each pack of seeds supply greenleafy and other vegetables to meet 3-4 months
- Production.. 35kgs/month and
- saving Rs.850/-month/family

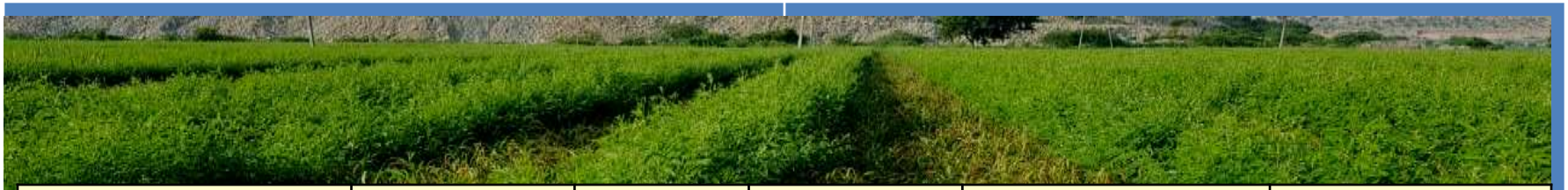
Literature

Distribution of Nutrigarden seed kits

Establishment Nutri gardens

Promotion of nutrition gardens

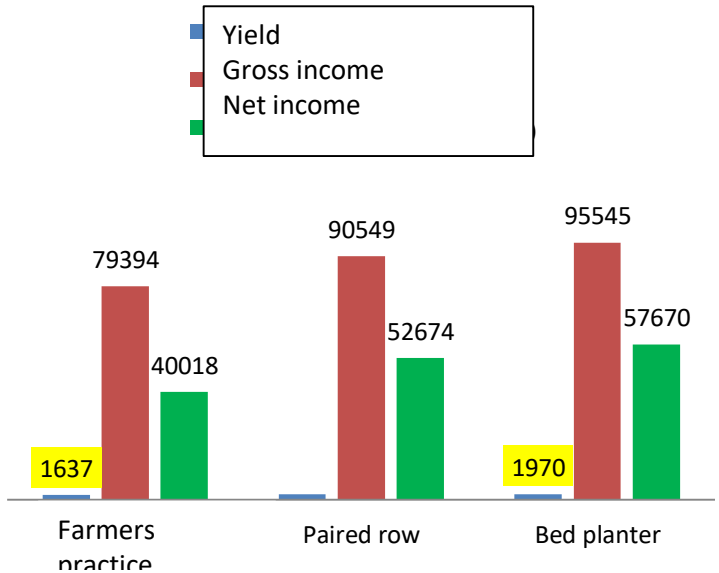
Setaria + Red gram intercropping system



•Crop/Cropping •System	•Seed yield (kg/ha)	•Fodder (kg/ha)	•Cost of cultivation (Rs/ha)	•Gross income •(Rs/ha)	•B:C ratio
•Setaria (Sole	• 993	•1588	•14070	•19860	•1:1.4
•Seteria+Redgram	• 919 (S)	•1470	•15228	•38080	•1:2.5
	• 394 (R)				

OFT:2 Assessment of different Planting methods in Bengalgram

Treatments	Yield Kg/ha	Cost of cultivation	Gross returns Rs/ha	Net returns Rs/ha	CB ratio
1. Sowing at 30 cm X10cm	1637	39376	79394	40018	2.01
2.Sowing with Paired row planter .	1867 (14.0%)	37875	90549	52674	2.40
3.. Sowing with BBF planter ..	**1970 (20.3%)**	**37875**	**95545**	**57670**	**2.52**

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OFT : Assement of different in-situ moisture conservation methods in Bengaigram


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Assessment of Different Planting Methods in Bengaigram


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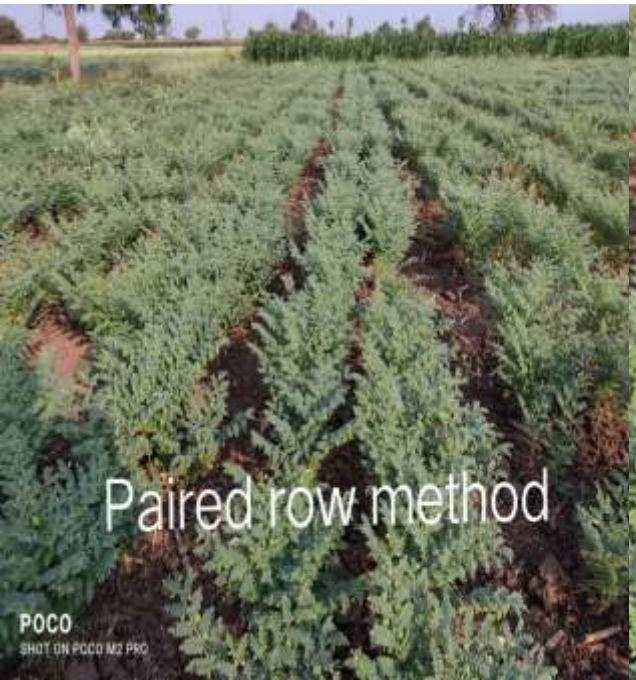
OFT : Assement of different in-situ moisture conservation methods in Bengaigram


Paired row method
POCO
SHOT ON POCO M2 PRO

Fodder Bank

Area	: 1.0ha
Varieties	: CO-4, Super Napier
No. of farmers involved	: 15
No.of animals fed	: 42










Technology Demonstration on
Conservation Farmers

Drought Tolerant varieties In Jowar

Drought tolerant Jowar Variety : M35-1

Drought tolerant Jowar Variety : NTJ-5

Alternative crop

Intervention : Short duration variety – Seteria

Farmer Name	Comparison of Treatments	Crop	Variety	Date of sowing	Seed yield (kg/ha)	Fodder yield (kg/ha)	Gross cost (Rs./ha)	Gross returns (Rs./ha)	Net returns (Rs./ha)	BC
Farmer 40	Treatment / Demo	Seteria	SIA-3085	19.07.2015	2483	2916	14820	51699	36879	3.48
	Farmers practice	Cotton	Desi	17.7.015	510	------	13800	20394	6594	1.48

Rainfall Characteristics of 2022 and stress experienced

Rainfall		Year	
		Normal RF	2022-23
Annual rainfall (mm)		**633.0**	**670.9**
June		65.0	139.8(5)
July		107.0	46.4 (6)
August		115.0	120.1(4)
September		120.0	144.4(7)
Total *Kharif* rainfall		**407**	**450.7**
No. of rainy days (*Kharif*)		-	**22**
No. of dry spells during *kharif* season 2022			
	>10days	-	-
	>15days	1 dry spell	16 days(Sep)
	>20days	1 dry spell	21 days(Aug)
No. of intensive rain spells (2022)	>60 mm per day	1-8-22 26-9-22	68.3 mm 52.6 mm

Rainfall 2022												
Date	April	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	0	0	0	0	68.3	4.2	0	0	0	0	0	0
2	0	0	20.0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	15.2	0	0	0	0	0
4	0	0	0	0	21.4	26.2	0	0	0	0	0	0
5	0	0	16.2	0	0	0	0	0	0	0	0	0
6	0	0	0	6.2	0	0	14.6	0	0	0	0	0
7	0	0	0	0	0	10.2	0	0	0	0	0	0
8	0	0	0	0	0	3.6	0	0	0	0	0	0
9	0	0	0	14.0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	19.6	0	0	0
11	0	1.8	0	0	0	0	0	0	0	0	0	0
12	0	9.6	0	0	0	0	80.0	0	6.0	0	0	0
13	0	18	0	0	0	0	0	0	0	0	0	0
14	0	0	52.4	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	41.8	0	0	0	0	0
16	0	0	33.0	0	0	0	0	0	0	0	0	23.8
17	0	0	0	0	0	0	4.4	0	0	0	0	0
18	0	9.2	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	6.0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	8.2	0	0	0	0	0	0	0	0
26	0	0	0	8.4	0	52.6	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	00
28	0	0	0	0	0	20.0	0	0	0	0	0	0
29	0	0	18.2	4.0	8.0	27.6	0	0	0	0		0
30	0	0	0	0	0	0	0	0	0	0		0
31		0		0	0		0			0		0

Duration of dry spell	Crop stage impacted and duration	Interventions taken
21 days (Aug)	Vegetative	-
17 days (Sep)	Vegetative, Flowering Stage	2% urea or 15 KNO3 solution spraying
14days(Oct)	Flowering and Fruit formation	2% urea or 15 KNO3 solution spraying

Duration of flood	Crop stage impacted and duration	Interventions taken
12-10-22 (80 mm)	Delayed rabi sowings	

Predominant farming system typologies in NICRA villages

S No	Farming System Typologies	Village 1 (Yagantipalli)		
		Area (ha)	No. of farmers (approx.)	% area in the village
1	FST-1: Rain fed without Animals	358.4	635	56%
2	FST-2: Rain fed with Animals crop-1	89.6	170	14%
3	FST-2: Rain fed with Animals crop-2			
4	FST-3: Irrigated without animals	144	95	22.5%
5	FST-4: Irrigated with animals	48	24	7.5%

Predominant farming system typologies in NICRA villages

S No	Farming System Typologies	Village 2 (Meerapuram)		
		Area (ha)	No. of farmers (approx.)	% area in the village
1	FST-1: Rain fed without Animals	85	215	42.5%
2	FST-2: Rain fed with Animals crop-1	65	89	32.5%
3	FST-2: Rain fed with Animals crop-2			
4	FST-3: Irrigated without animals	24	32	12%
5	FST-4: Irrigated with animals	36	45	18%

Predominant farming system typologies in NICRA villages

S No	Farming System Typologies	Village 3 (Cherlokotturu)		
		Area (ha)	No. of farmers (approx.)	% area in the village
1	FST-1: Rain fed without Animals	35	42	13.4%
2	FST-2: Rain fed with Animals crop-1	**169**	**96**	**65%**
3	FST-2: Rain fed with Animals crop-2			
4	FST-3: Irrigated without animals	10	3	3.84%
5	FST-4: Irrigated with animals	44	20	16.9%

Predominant farming system typologies in NICRA villages

S No	Farming System Typologies	Village 4 (Krishnagiri)		
		Area (ha)	No. of farmers (approx.)	% area in the village
1	FST-1: Rain fed without Animals	278	66	68.4%
2	FST-2: Rain fed with Animals crop-1	74	34	18.22%
3	FST-2: Rain fed with Animals crop-2			
4	FST-3: Irrigated without animals	46	22	11.3%
5	FST-4: Irrigated with animals	8	6	1.97%

Predominant farming system typologies in NICRA villages

S No	Farming System Typologies	Village 5 (Chinnarajupalem)		
		Area (ha)	No. of farmers (approx.)	% area in the village
1	FST-1: Rain fed without Animals	250	120	36
2	FST-2: Rain fed with Animals crop-1	230	95	29.6
3	FST-2: Rain fed with Animals crop-2			
4	FST-3: Irrigated without animals	140	85	20.2
5	FST-4: Irrigated with animals	70	45	14.2

Climate Resilient Technologies (CRTs) demonstrated and number of farmers involved in the demonstrations in each of the FST

Village*	FST1	FST2	FST3	FST4
	No. of farmers involved in demonstrations	No. of farmers involved in demonstrations	No. of farmers involved in demonstrations	No. of farmers involved in demonstrations
Yagantipalle	30	32	14	24
Meerapuram	28	32	15	20
Cherlokothur	25	35	30	35
Krishnagiri	15	20	10	15
Chinnarajupalem	13	20	17	12
Total	111	139	86	106

Total farmers covered in 2022-23:442

Impact of CRTs in each FST1 (Farming system typology rain fed without animal) during 2022

Crop/ Perennials	Technology adopted/ demonstrated	Area impacted by climatic stress, crop and stage	Rainfed (Yagantipalle)					
			Kharif (NICRA farmers)			Kharif (non-NICRA farmers)		
			Area (ha)	Productivity (q/ha)	Net return (Rs./ha)	Area (ha)	Productivity (q/ha)	Net return (Rs./ha)
Red gram	in-situ moisture conservation	185 ha, vegetative and flowering	1	1155	40,765.00	1	982	30,366.00
			1	1133	36,350.00	1	926	22,500.00
			1	1105	32,400.00	1	952	27,350.00
Red gram	Drought tolerant varieties (PRG-176)		1	1462	71785.00	1	1170	60900.00
			1	1425	68650.00	1	1265	64350.00
			1	1396	62450.00	1	1095	56750.00

Formation of Furrows between Redgram rows at 30 to 35 DAS after showing

Drought tolerant verity –Redgram –PRG-176

Impact of CRTs in each FST1 (Farming system typology rain fed without animal) during 2022 (report impact of interventions for 3 farmers in each typology)

Crop/ Perennials	Technology adopted/ demonstrated	Area impacted by climatic stress, crop and stage	Rainfed (Yagantiaplli)					
			Kharif and rabi (NICRA farmers)			Kharif and rabi (non-NICRA farmers)		
			Area (ha)	Productivity (q/ha)	Net return (Rs./ha)	Area (ha)	Productivity (q/ha)	Net return (Rs./ha)
Bengal Gram	Drought Tolerant Variety (NBeG49)	55	1	1645	51290	1	1240	27980
			1	1565	47580	1	1215	25960
			1	1635	49680	1	1190	24530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Yagantipalle - 518124, Kurnool Dist., A.P.
ICAR
Technology Demonstration on
Introduction of Drought tolerant variety
Crop : Bengalgram
Variety : Jaki-9218/Vihar
Season : Rabi-2012

Impact of CRTs in each FST1 (Farming system typology rain fed without animal) during 2022

Yagantipalli

Crop/ Perennials	Technology adopted/ demonstrated	Area impacted by climatic stress, crop and stage	Rainfed (Yagantiaplli)					
			Kharif and rabi (NICRA farmers)			Kharif and rabi (non-NICRA farmers)		
			Area (ha)	Productivity (q/ha)	Net return (Rs./ha)	Area (ha)	Productivity (q/ha)	Net return (Rs./ha)
Jowar	Drought Tolerant Variety	M35-1	1	1562	47440	1	1125	11480
			1	1512	44670	1	1085	9650
			1	1535	46890	1	1005	8965
Jowar	Drought Tolerant Variety	NTJ-5	1	1650	29920			
			1	1620	25120			
			1	1635	27980			

Drought Tolerant varieties In Jowar

Drought tolerant Jowar Variety : M35-1

Drought tolerant Jowar Variety : NTJ-5

Impact of CRTs in each FST1 (Farming system typology rain fed without animal) during 2022 (report impact of interventions for 3 farmers in each typology)

Crop/ Perennials	Technology adopted/ demonstrated	Area impacted by climatic stress, crop and stage	Rainfed (Yagantiaplli)					
			Kharif and rabi (NICRA farmers)			Kharif and rabi (non-NICRA farmers)		
			Area (ha)	Productivity (q/ha)	Net return (Rs./ha)	Area (ha)	Productivity (q/ha)	Net return (Rs./ha)
Setaria	Short Duration variety (Suraya nandi)	135	1	1560	34270	1	1140	21830
			1	1490	29650	1	1225	23250
			1	1520	32450	1	1095	196500

Influence of *alternate crops i.e. Setaria* on yields and income in rain fed environment 2022-23,

Sateria Var : Suryanandi

Impact of CRTs in each FST1 (Farming system typology rain fed without animal) during 2022

Yagantipalli

Crop/ Perennials	Technology adopted/ demonstrated	Area impacted by climatic stress, crop and stage	Rainfed (Yagantipalli)					
			Kharif and rabi (NICRA farmers)			Kharif and rabi (non-NICRA farmers)		
			Area (ha)	Productivity (q/ha)	Net return (Rs./ha)	Area (ha)	Productivity (q/ha)	Net return (Rs./ha)
Redgram+ Setaria (1:5)	Inter cropping system Red gram (PRG176), Setaria (SURYA NANDI)	105	1	745+1690	60595	1	1745	24540
			0.8	715+1665	56830	0.8	1635	18560
			0.8	735+1625	58960	0.8	1725	22980
Soyabeen-Bengalgram	Double cropping in Rainfed black soils Bengal gram (NBeG49)		1	1682-1845	92198	1	2050	41800
			1	1666+1795	86450	1	1980	39580
			1	1692+1820	89560	1	2100	42590

Red gram+Setaria Intercropping system

Soybean - Bengal gram sequence crop

Impact of CRTs in each FST1 (Farming system typology rain fed without animal) during 2022 (Village-2)

Crop/ Perennials	Technology adopted/ demonstrated	Area impacted by climatic stress, crop and stage	Rainfed (Meerapuram)					
			Kharif and rabi (NICRA farmers)			Kharif and rabi (non-NICRA farmers)		
			Area (ha)	Productivity (q/ha)	Net return (Rs./ha)	Area (ha)	Productivity (q/ha)	Net return (Rs./ha)
Red gram	in-situ moisture conservation	90ha, vegetative and flowering	1	1220	43,640.00	1	982	30,366.00
			1	1205	43,930.00	1	926	22,500.00
			1	1195	42,590.00	1	952	27,350.00
Red gram	Drought tolerant varieties (PRG-176)		1	1398	54,176.00	1	1170	60900.00
			1	1356	52,398.00	1	1265	64350.00
			1	1324	49,512 .00	1	1095	56750.00

Impact of CRTs in each FST1 (Farming system typology rain fed without animal) during 2022 (Village-2)

Crop/ Perennials	Technology adopted/ demonstrated	Area impacted by climatic stress, crop and stage	Rainfed (Meerapuram)					
			Kharif and rabi (NICRA farmers)			Kharif and rabi (non-NICRA farmers)		
			Area (ha)	Productivity (q/ha)	Net return (Rs./ha)	Area (ha)	Productivity (q/ha)	Net return (Rs./ha)
Jowar	Drought tolerant varieties (NTJ-5)	25	1	1650	29920	1	1125	11480
			1	1620	25120	1	1085	9650
			1	1635	27980	1	1005	8965
Bengal gram	Drought Tolerant Variety	15	1	1645	51290	1	1240	27980
			1	1565	47580	1	1215	25960
			1	1635	49680	1	1190	24530

Impact of CRTs in each FST1 (Farming system typology rain fed without animal) during 2022 (Village-2)

Crop/ Perennials	Technology adopted/ demonstrated	Area impacted by climatic stress, crop and stage	Rainfed (Meerapuram)					
			Kharif and rabi (NICRA farmers)			Kharif and rabi (non-NICRA farmers)		
			Area (ha)	Productivity (q/ha)	Net return (Rs./ha)	Area (ha)	Productivity (q/ha)	Net return (Rs./ha)
Redgram + Setaria	Inter cropping system (RedgramPRG-176+Suryanandi)	96	1	815+1630	63,850.00	1	1745	24540
			1	820+1590	64,230.00	1	1635	18560
			1	835+1550	65,755.00	1	1725	22980
Setaria	Short Duration variety (Suryanandi)	65	1	1420	22,460.00	1	1140	21830
			1	1510	28,230.00	1	1225	23250
			1	1460	25,800.00	1	1095	196500

Impact of CRTs in each FST1 (Farming system typology rain fed without animal) during 2022 (Village-3)

Crop/ Perennials0	Technology adopted/ demonstrated	Area impacted by climatic stress, crop and stage	Rainfed (Cherlokottur)					
			Kharif and rabi (NICRA farmers)			Kharif and rabi (non-NICRA farmers)		
			Area (ha)	Productivity (q/ha)	Net return (Rs./ha)	Area (ha)	Productivity (q/ha)	Net return (Rs./ha)
Red gram	in-situ moisture conservation	35 ha, vegetative and flowering	1	1360	52,800.00	1	982	30,366.00
			1	1290	48,360.00	1	926	22,500.00
			1	1320	49,430.00	1	952	27,350.00
Red gram	Drought tolerant varieties (PRG-176)		1	1420	54,176.00	1	1170	60900.00
			1	1365	48,396.00	1	1265	64350.00
			1	1380	49,480 .00	1	1095	56750.00

Impact of CRTs in each FST1 (Farming system typology rain fed without animal) during 2022 (Village-3)

Crop/ Perennials	Technology adopted/ demonstrated	Area impacted by climatic stress, crop and stage	Rainfed (Cherlokotturu)					
			Kharif and rabi (NICRA farmers)			Kharif and rabi (non-NICRA farmers)		
			Area (ha)	Productivity (q/ha)	Net return (Rs./ha)	Area (ha)	Productivity (q/ha)	Net return (Rs./ha)
Redgram + Setaria(1:5)	Inter cropping systemInter cropping system (RedgramPRG-176+Suryanandi)	68	1	1630+ 755	44930.00	1	1745	24540
			1	1665+796	47860.00	1	1635	18560
			1	1620+810	46520.00	1	1725	22980
Setaria	Short Duration variety(Suryanandi)	25	1	1575	29,250.00	1	1140	21830
			1	1510	24,630.00	1	1225	23250
			1	1558	26,800.00	1	1095	196500

Impact of CRTs in each FST1 (Farming system typology rain fed without animal) during 2022 (Village-4)

Crop/ Perennials0	Technology adopted/ demonstrated	Area impacted by climatic stress, crop and stage	Rainfed Krishnagiri					
			Kharif and rabi (NICRA farmers)			Kharif and rabi (non-NICRA farmers)		
			Area (ha)	Productivity (q/ha)	Net return (Rs./ha)	Area (ha)	Productivity (q/ha)	Net return (Rs./ha)
Red gram	in-situ moisture conservation	15 ha, vegetative and flowering	1	1260	47,100.00	1	982	30,366.00
			1	1280	51,330.00	1	926	22,500.00
			1	1220	46,225.00	1	952	27,350.00
Red gram	Drought tolerant varieties (PRG-176)		1	1150	41,500.00	1	1170	60900.00
			1	1255	45,810.00	1	1265	64350.00
			1	1195	43,090 .00	1	1095	56750.00

Impact of CRTs in each FST1 (Farming system typology rain fed without animal) during 2022 (Village :4)

Crop/ Perennials	Technology adopted/ demonstrated	Area impacted by climatic stress, crop and stage	Rainfed (Krishnagiri)					
			Kharif and rabi (NICRA farmers)			Kharif and rabi (non-NICRA farmers)		
			Area (ha)	Productivity (q/ha)	Net return (Rs./ha)	Area (ha)	Productivity (q/ha)	Net return (Rs./ha)
Jowar	Drought tolerant varieties (NTJ-5)	15	1	1720	30520.0	1	1125	11480
			1	1696	27545.00	1	1085	9650
			1	1728	29765.00	1	1005	8965

Impact of CRTs in each FST1 (Farming system typology rain fed without animal) during 2022 (Village :4)

Crop/ Perennials	Technology adopted/ demonstrated	Area impacted by climatic stress, crop and stage	Rainfed (Krishnagiri)					
			Kharif and rabi (NICRA farmers)			Kharif and rabi (non-NICRA farmers)		
			Area (ha)	Productivity (q/ha)	Net return (Rs./ha)	Area (ha)	Productivity (q/ha)	Net return (Rs./ha)
Redgram + Setaria	Inter cropping systemInter cropping system (RedgramPRG-176+Suryanandi)	68	1	1137+625	36420.00	1	1745	24540
			1	1256+682	37535.00	1	1635	18560
			1	1284+645	41560.00	1	1725	22980
Setaria	Short Duration variety(Suryandi)	25	1	1575	29,250.00	1	1140	21830
			1	1510	24,630.00	1	1225	23250
			1	1558	26,800.00	1	1095	196500

Impact of CRTs in each FST1 (Farming system typology rain fed without animal) during 2022 (Village-5)

Crop/ Perennials0	Technology adopted/ demonstrated	Area impacted by climatic stress, crop and stage	Rainfed (Chinna Rajupalem)					
			Kharif and rabi (NICRA farmers)			Kharif and rabi (non-NICRA farmers)		
			Area (ha)	Productivity (q/ha)	Net return (Rs./ha)	Area (ha)	Productivity (q/ha)	Net return (Rs./ha)
Red gram	in-situ moisture conservation	05 ha, vegetative and flowering	1	1260	47,100.00	1	982	30,366.00
			1	1280	51,330.00	1	926	22,500.00
			1	1220	46,225.00	1	952	27,350.00
Red gram	Drought tolerant varieties (PRG-176)	35 ha	1	1150	41,500.00	1	1170	60900.00
			1	1255	45,810.00	1	1265	64350.00
			1	1195	43,090 .00	1	1095	56750.00

Impact of CRTs in each FST1 (Farming system typology rain fed without animal) during 2022 (Village-5)

Crop/ Perennials	Technology adopted/ demonstrated	Area impacted by climatic stress, crop and stage	Rainfed (Chinna Rajupalem)					
			Kharif and rabi (NICRA farmers)			Kharif and rabi (non-NICRA farmers)		
			Area (ha)	Productivity (q/ha)	Net return (Rs./ha)	Area (ha)	Productivity (q/ha)	Net return (Rs./ha)
Redgram + Setaria(1:5)	Inter cropping systemInter cropping system (RedgramPRG-176+Suryanandi)	20	1	1137+625	36420.00	1	1745	24540
			1	1256+682	37535.00	1	1635	18560
			1	1284+645	41560.00	1	1725	22980
Setaria	Short Duration variety	15	1	1338	21540.00	1	1140	21830
			1	1395	22,200.00	1	1225	23250
			1	1450	22,710.00	1	1095	19650

Impact of CRTs in each FST 2&4 (Farming system typology Rainfed with animal & irrigated with animal during 2022

(villages : Cherlo Kotturu and Chinna Rajupalem)

Animal (NICRA Farmer)	No.	Technology adopted/ demonstrated	Production/ year*	Selling price (Rs/unit)	Gross returns (Rs./animal)	By products quantity	Unit price (Rs.)	Gross Returns (ha.)
	1	Calf Registration						

Results 2022-23 Calf Registration(Cherlokotturu & Chinna Rajupalem)

Particulars	Farmers practice	Demonstration	Remarks
Initial body weight (kg)	21.6	24.2	The increased growth rate helps the calf to come into heat early.
Final body weight (Kg)	59.3	68.8	
Body weight gain (kg)	37.7	44.6	
% increased in body Weight gain	17.13		
Mortality (number)	8	3	
Mortality (%)	8%	3%	

Hundred calves were covered

Calf Registration









Impact of CRTs in each FST 2&4 (Farming system typologyRainfed with animal & irrigated with animal during 2022 (village : Cherlo Kotturu and Meerapuram)

Animal (Non NICRA farmer)	No.	Technology adopted/ demonstrated	Production/ year*	Selling price (Rs/unit)	Gross returns (Rs./animal)	By products quantity	Unit price (Rs.)	Gross Returns (ha.)
1.		Hormonal Treatment						

Improving reproductive efficiency in buffaloes through hormone treatment (Cherlokotturu& Meerapuram)

Protocol:	
0 day	PgF2α 2ml
After 72 hours	AI (If animal is in heat)
11 day	PgF2α 2ml (2nd dose)
After 72 hours	AI

Village	Typology	No of animals treated	No. exhibited heat	No conceived
Meerapuram	FST2	36	28	12
Cherlokothuru	FST4	14	10	4
Total		50	38 (76%)	16. 42%)

Health camp at cherlokottur

Health camp at Meerapuram

Impact of CRTs in each FST3 & FST4(Farming system typology irrigated with and without animal) during 2022 (report impact of interventions for 3 farmers)

Crop/ Perennials	Technology adopted/ demonstrated	Area impacted by climatic stress, crop and stage	Irrigated Yagantipalle, Meerapuram ,Cherlokotturu and Chinna Rajupalem					
			Rabi (NICRA farmers)			Rabi (non-NICRA farmers)		
			Area (ha)	Productivity (q/ha)	Net return (Rs./ha)	Area (ha)	Productivity (q/ha)	Net return (Rs./ha)
Maize	Paired Row cultivation vs Single row		1	6905	67417	1	6435	60597
			1	6580	65960	1	6350	58320
			1	6796	66950	1	6215	53560

Paired row method of Planting in Maize

Farmers Practice

Impact of CRTs in each FST3 (Farming system typology irrigated without animal) during 2022 (report impact of interventions for 3 farmers)

Crop/ Perennials	Technology adopted/ demonstrated	Area impacted by climatic stress, crop and stage	Irrigated (Yagantipalle & Cherlokotturu)					
			Kharif and rabi (NICRA farmers)			Kharif and rabi (non-NICRA farmers)		
			Area (ha)	Productivity (t/ha)	Net return (Rs./ha)	Area (ha)	Productivity (q/ha)	Net return (Rs./ha)
Mango	Nutrient Management	15 ha	1	12.13	288900	1	10.78	234865
			1	12.25	293000	1	9.95	206430
			1	13.5	305000	1	10.20	216825

Nutrient management in Mango orchards

Distribution of inputs to the mango citrus farmers

Impact of CRTs in each FST3 (Farming system typology irrigated without animal) during 2022 (report impact of interventions for 3 farmers)

Crop/ Perennials	Technology adopted/ demonstrated	Area impacted by climatic stress, crop and stage	Irrigated (Cherlokotturu & Chinna Rajupalem)					
			Kharif and rabi (NICRA farmers)			Kharif and rabi (non-NICRA farmers)		
			Area (ha)	Productivity (t/ha)	Net return (Rs./ha)	Area (ha)	Productivity (q/ha)	Net return (Rs./ha)
Vegetables	Multiple cropping System Mango+tomoto + Bitter gourd	05 ha 04 ha Mango	1	12.13	288900	1	10.78	234865
		Tomoto	1 ha	37.02	92700	-	-	-
		Bittergourd	1ha	75q	79500	-	-	-


Area : 2.0ha
Varieties : CO-4, Super Napier
No. of farmers involved :30
No.of animals fed : 72
Cherlakotturu
Google
Krishnagiri, Andhra Pradesh, India
Unnamed Road, Krishnagiri, Andhra Pradesh 518122, India
Lat N 15° 18' 15.0768"
Long E 78° 6' 45.126"
19/06/21 03:46 PM
FODDER BANK AT CHARLAKOTHURU


KRISHI VIGYAN KENDRA
National Innovations on Climate Resilient Agriculture (NICRA)
పశుగ్రాస ప్రదర్శనా క్షేత్రం
రకం: COFS-29

Fodder Bank at Charlakothuru village

Particulars	2017 (Before NICRA)	2020
Area under fodder cultivation (acres)	1.2	18.6
Fodder varieties	APBN-1	Super Napier, CoFS-29
Fodder bank (acres)	-	2
Village milk production (during January month/day)	186	262

Fodder plots Improved housing for dairy animals at Charlokothuru village in convergence with animal husbandry department

Silage making in bags

Capacity : 500kg
Sufficient for : 100days/animal/bag
Cost of bag : Rs.650.00 (multiuse)

Particulars	Milk yield (L) in 60 days
Farmers' practice (Jowar straw + Feed)	374.0
Silage + Jowar straw + Feed	432.0
% increase	15.5
Additional net income	Rs.2368.00
B:C ratio	1:3.0/1:4.67

Livestock interventions

Performance of Custom Hiring Center during 2022

S.No.	Name of Implement	Area (ha)	No. of farmers utilized the equipment during 2022
1	Seed drills	42	26
2	Cultivator	75	24
3	Seven tined cultivator	38	13
4	Rotavator	32	23

Custom Hiring Center

Seed production systems in NICRA villages during 2022

S.No.	Crop	Variety	Area (ha)	No. of farmers involved during 2022	Quantity produced (q)	Revenue generated
1.	Setaria	Suryanandi	12	9	120	70,000
2.	Red gram	PRG-176	20	15	200	120000
3.	Bengal gram	NBeG-452	5	8	40.0	2,32,000

AwarenessProgramme on Climate Resilient Agriculture In Rainfed Areas

District level awareness Programmes

Training Programmers

Technologies adopted by significant number of farmers in NICRA villages

Name of technology	Area (ha) (Adoption with the technology)	Farmers (No)	Mode of spread (Process)
Inter cropping System	435	625	Field days Training programmes, Field visits and word of mouth
Short duration variety (Setaria)	680	1200	
Drought tolerant varieties Red gram (PRG-176)	396	630	
Bengal gram (NBeG-49)	212	335	

Amount (Rs.) mobilized through convergence from various departments for spread of resilient technologies

S. No.	Intervention	Climate Resilient Technology	Convergence established with center / state (Name of the programme or department)	Coverage [No. of farmers/Area (ha)]	Approx. amount (Rs.) mobilized
1	Percolation tank	Rain water conservation	State department and NGO	140 farmers	35,00,000
2	Demonstration of drought tolerant red gram and setaria ln-situ moisture moisture conservation	Resilient varieties Intercropping conservation tillage	C- SUCeS project	125	90,0000

Agro advisories

Whether agro-advisories are being issued: Yes

Source of forecast: DAMU, Banavasi

who is preparing agro-advisory: DAMU, Banavasi

Efforts made by KVK to spread the promising technologies in the NICRA villages and in the district

- Creating awareness through print and electronic media regarding CRTs.
- Taking up demonstrations of CRTs at kvk campus for firld experience to farmers.
- Seed production of the varieties by NICRA farmers.
- Facilitating processing and branding of the seed produced by farmers in the NICRA villages.
- Promotion of value chain of millets.
- On farm demonstrations of the latest released varieties of millets.
- Participatory trails on conservation agriculture.
- Making available of different crop varieties at kvk for faster adoption.
- Informing the agriculture department network through RBKS.

Other related information

Learnings:

- Intercropping proved to be a best climate resilient technology in rain shadow mandal of banaganapalle
- Medium duration red gram varieties are best suited to the soils of the region and escape from haze.
- Short duration Setaria is best suited to double cropping in rainfed situation.
- Fodder bank concept is well taken by the rainfed farmers

Impact:

- Intercropping of red gram(PRG-176) and Setaria (Suryanandhi) was widely adopted in Banaganapalle and Betamcherla mandals in more than 3,000 ha.
- Setaria cultivation was taken up in rabi season as its cost of cultivation is less and fetching remunerative price.
- Red gram variety PRG176 area was increased due to its preference by farmers with shallow soils.










Technology Demonstration on
Conservation Farmers



Dr.Mamatha Pradhan and Dr.Anisha Mohan, IFPRI, New Delhi, Visited NICRA activities

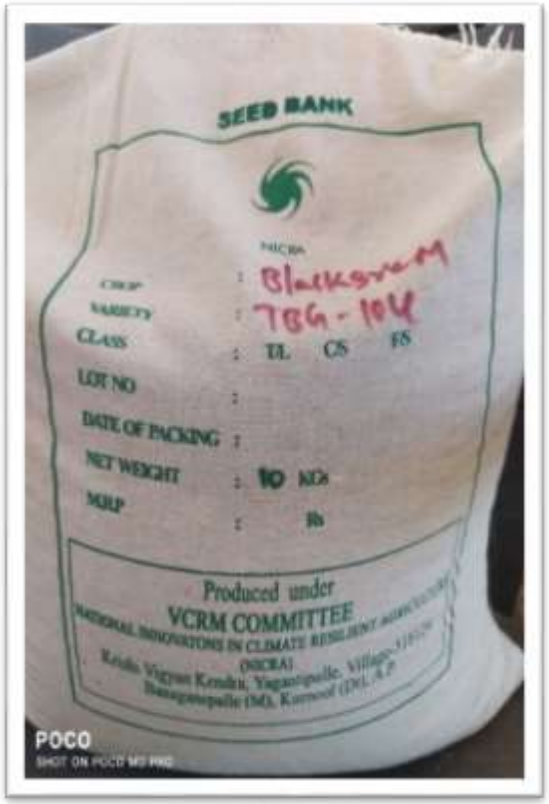






Thank you

NICRA Farmers into agripeneurs



Thankyou