

➤ **Information on Research Station**

Name of centre	:	Main Rice Research Centre, SWMRU, Navsari Agricultural University, Navsari
Year of Establishment	:	1982
Mandate of the centre	:	<ol style="list-style-type: none"> 1. To develop high yielding paddy varieties suitable for the region (duration, quality and resistant to biotic and abiotic stresses) 2. To improve agronomical practices for obtaining higher yield and more net return. 3. To identify suitable Plant protection measures for paddy. 4. To explore the Integrated Pest and Disease Management Practices for major insect pest and diseases of the area.

➤ **Details of land at the centre (ha.)**

Cultivated	Irrigated	Non-irrigated	Area under Infrastructure	Total
9.0	9.0	0	1.2	10.2

➤ **Budget Provision : Plan /Non Plan /ICAR/ Other Agency**

Funding Agency	Title of Scheme / project	Budget Head	Budget Provision (Rs. in Lakhs)
Plan	Genetic enhancement of niche crops of South Gujarat through conventional and biological approaches	12946-C	7.00
Non- Plan	National Agricultural Research Project	7081-A	100.44
Non- Plan	Strengthening Research in Paddy	5003	9.12
ICAR	A.I.C.R.P. on Rice for Navsari centre	2056	40.69
Other Agency	Paddy hybrids testing- <i>Rabi</i> -summer	18133	3.89
Other Agency	Hybrid Rice Coded SAU Trial	18147	32.04
Other Agency	Performance Trial of Rice Hybrids	18166	2.75
Other Agency	To test the bio efficacy of ME 5382 2% granules against stem borer and brown plant hoppers on rice	18154	4.23
Other Agency	To test the bio efficacy of ME 5382 10% SC against stem borer and brown plant hoppers on rice	18155	5.03

➤ **Details of scheme (2017-18)**

Funding Agency	Title of Scheme / project	Budget Head	Name of PI	Year of starting
Plan	Genetic enhancement of niche crops of South Gujarat through conventional and biological approaches	12946-C	Dr. V. P. Usadadia	2008
Non- Plan	National Agricultural Research Project	7081-A	Dr. V. P. Usadadia	1982
Non- Plan	Strengthening Research in Paddy	5003	Dr. V. P. Usadadia	1983
ICAR	A.I.C.R.P. on Rice for Navsari centre	2056	Dr. V. P. Usadadia	2010
Other Agency	Paddy hybrids testing- Rabi-summer	18133	Dr. P. B. Patel	2017
Other Agency	Hybrid Rice Coded SAU Trial	18147	Dr. P. B. Patel	2016
Other Agency	Performance Trial of Rice Hybrids	18166	Dr. P. B. Patel	2017
Other Agency	To test the bio efficacy of ME 5382 2% granules against stem borer and brown plant hoppers on rice	18154	Dr. P. D. Ghoghari	2017
Other Agency	To test the bio efficacy of ME 5382 10% SC against stem borer and brown plant hoppers on rice	18155	Dr. P. D. Ghoghari	2017

➤ **Details of man power at the centre (31/03/2018)**

Funding Agency	Name of employee	Designation	Pay scale	B.H.	
Plan	Nil	Nil	Nil	12946-C	
Non- Plan	Dr. P. B. Patel	Associate Professor (Pl. Breeding)	37400-67000-9000	7081-A	
	Dr. J. M. Patel	Associate Professor (Agronomy)	37400-67000-9000	7081-A	
	Dr. P. D. Goghari	Associate Professor (pl. Patho)	37400-67000-9000	7081-A	
	Dr. Ajay V. Narwade	Associate Professor (Pl. Physiology)	37400-67000-9000	7081-A	
	Vacant	Associate Professor (Ag. Engineering)	37400-67000-9000	7081-A	
	Vacant	Associate Professor (Economics)	37400-67000-9000	7081-A	
	Mr. K. V. Makwana	Assistant Professor (Pl. Pathology)	15600-39100-7000	7081-A	
	Dr. P. M. Mistry	Assistant Professor (Pl. Breeding)	15600-39100-7000	7081-A	
	Vacant	Assistant Professor (Pl. Breeding)	15600-39100-7000	7081-A	
	Dr. Kedarnath	Assistant Professor (Ento)	15600-39100-7000	7081-A	
	Mr. A. L. Chalodia	Assistant Professor (Ag. Engineering)	15600-39100-7000	7081-A	
	Vacant	Assistant Professor (Agronomy)	15600-39100-7000	7081-A	
	Mr. D. G. Chapaneri	Agril. Assistant	39900-126600	7081-A	
	Miss. Amisha M. Patel	Agril. Assistant	29200-92300	7081-A	
	Mr. M. D. Patel	Demonstrator (Lb. Tech)	29200-92300	7081-A	
	Vacant	Jr. Clerk	29200-92300	7081-A	
	Vacant	Peon	29200-92300	7081-A	
	Mr. D. G. Patel	Jeep driver	29200-92300	7081-A	
	Non- Plan	Mr. S. K. Ahir	Agril. Supervisor	29200-92300	5003
		Mrs. Mitali V. Patel	Agril. Assistant	29200-92300	5003
ICAR	Dr. V.A. Patil	Assistant Professor (Plant Pathology)	15600-39100-7000	2056	
	Mr. N. K. kavad	Assistant Professor (Entomology)	15600-39100-7000	2056	
	Vacant	Assistant Professor (Plant Breeding)	15600-39100-7000	2056	
	Vacant	Assistant Professor (Agronomy)	15600-39100-7000	2056	

➤ **Scheme wise details of experiments (2018-19)**

Funding Agency	B.H.	Season	Title of experiment
Plan	12946-C	<i>Kharif</i>	1. Large Scale Variety Trial – Early-Coarse
			2. Large Scale Variety Trial – Early-Medium
			3. Large Scale Variety Trial – Early-Fine
			4. Large Scale Variety Trial –ML-F
			5. Large Scale Variety Trial –ML-M & C
			6. Large Scale Varietal Trial- Biofortified
			7. Small Scale Varietal Trial- Biofortified
			8. Small Scale Varietal Trial - Aromatic
Non-Plan	7081-A	<i>Kharif</i>	1. Large Scale Variety Trial – Aromatic
			2. Small Scale Varietal Trial – Fine-I
			3. Small Scale Varietal Trial – Early- Coarse
			4. Small Scale Varietal Trial - MS -I
			5. Small Scale Varietal Trial- Fine-II
			6. Small Scale Varietal Trial – Long Bold-I
			7. Small Scale Varietal Trial – MS-II
			8. Large Scale Varietal Trial – Aerobic
			9. Large Scale Varietal Trial – Salt (ST 1)
			10. Small Scale Varietal Trial – LS-I
			11. Large Scale Hybrid Rice Trial (Private Company)
			12. Preliminary Evaluation Trial – Biofortified
			13. Preliminary Evaluation Trial – M & C
			14. International Irrigated Rice Observational Nursery- Module 1 (IRON-1)
			15. Green Super Rice Project- Irrigated Lowland nursery (GSR-IRLL-2018)
			16. District Trial – Salt
			17. Survey of rice diseases during summer- 2018
			18. Survey of rice diseases during <i>kharif</i> season
			19. Screening of advance breeding materials against rice diseases
			20. Seasonal infestation of insect pest of paddy in summer season
			21. Seasonal infestation of insect pest complex of rice at MRRC farm, Navsari and seven districts of paddy grown area
			22. Screening of various cultures of Nawagam for important pests of paddy at MRRC farm, Navsari.

			23. Natural field infestation of rice pests in yield evaluation genotypes (Breeding cultures) with preventive plant protection measures.
			24. Effect of integrated nutrient management on <i>rabi</i> -vegetable crops in rice based crop sequence in clay soils of South Gujarat
Non-Plan	5003	<i>Kharif</i>	1. Screening of breeding genotypes against important diseases of rice in natural field condition.
			2. Natural field incidence of rice diseases in yield evaluation genotypes with preventive plant protection measures
			3. Soil test based fertilizer recommendation for targeted yield of rice
			4. Production potential of hybrid under different fertility levels in South Gujarat conditions
ICAR (AICRIP)	2056	<i>Kharif</i>	1. Initial Varietal Trial – Late (IVT-late)
			2. Advanced Variety Trial-1-Late(AVT-1 Late)
			3. Initial Varietal Trial – ASG
			4. Initial Varietal Trial – Aerobic
			5. Initial Varietal Trial – biofort
			6. Advance Varietal Trial 1 – biofort
			7. Initial Varietal Trial – IM
			8. Advance Varietal Trial 1 – IM
			9. Initial Varietal Trial – IME
			10. Initial Varietal Trial – MS
			11. Advance Varietal Trial 1 – MS
			12. Advance Varietal Trial 2 – MS
			13. Initial Hybrid Rice Trial- ME(IHRT-ME)
			14. Initial Hybrid Rice Trial- IM (IHRT-M)
			15. Advanced Variety Trial-1- Aerobic
			16. Advanced Variety Trial-2- Aerobic
			17. Advance Varietal Trial 1 – IME
			18. Advance Varietal Trial 2 – IME
			19. Nutrient response trials on selected AVT-2 rice cultures under high and low input management [AVT 2 – IME(TP)]
			20. Nutrient and Weed management for higher productivity in different rice establishment methods
			21. Integrated Pest Management – On farm management of insects, diseases and weeds IPMs (Entomology, Pathology and Agronomy) - Special collaborative trial
			22. Analysis of long term meteorological data (temperature and rainfall) for identifying the reasons for yield reduction in different rice based cropping systems
			23. Multiple Resistance Screening Trial (MRST)
			24. Pesticides Compatibility Trial (PCT)
			25. Botanical Insecticide Evaluation Trial (BIET)
			26. Stem borer Screening Trial (SBST)
			27. Monitoring of pest and their natural enemies (MPNE)

			28. Monitoring of pest and their natural enemies under Light Trap (LT)
			29. Effect of Planting Date on Pest Incidence (EPDP)
			30. National Screening Nursery/2
			31. Leaf Folder Screening Trial
			32. Screening for Bacterial Blight resistance (NHSN)
			33. Screening for Sheath Rot resistance (NHSN)
			34. Screening for Bacterial Blight resistance (DSN)
			35. Screening for Sheath Rot resistance (DSN)
			36. Screening for Bacterial Blight resistance(NSN-1)
			37. Screening for Sheath Rot resistance (NSN-1)
			38. Screening for leaf blast resistance (NSN-1)
			39. Field Monitoring of Virulences: <i>Xanthomonas oryzae</i> pv. <i>oryzae</i>
			40. Field Monitoring of Virulences: <i>Pyricularia/Pyricularia oryzae</i>
			41. Evaluation of Fungicides against Location Specific Diseases
Other Agency	18133	Summer	1. Paddy hybrids testing- <i>Rabi</i> -summer
Other Agency	18147	<i>Kharif</i>	1. Hybrid Rice Coded SAU Trial
Other Agency	18166	<i>Kharif</i>	1. Performance Trial of Rice Hybrids
Other Agency	18154	<i>Kharif</i>	1. To test the bio efficacy of ME 5382 2% granules against stem borer and brown plant hoppers on rice
Other Agency	18155	<i>Kharif</i>	1. To test the bio efficacy of ME 5382 10% SC against stem borer and brown plant hoppers on rice

Year wise achievements (Scheme wise) :-

Crop Improvement:

Seven improved varieties (NAUR-1, GNR-2, GNR-3, GNR-4, Purna, GNR-5, GNR-6, GNR-7 and GR-15) and two hybrids (GNRH-1 and GRH-2) of rice have been developed for the welfare of the rice growing farmers of the state. Three rice varieties viz., NAUR-1, GNR-2, GNR-3 and GNR-4 registered with PPV & FRA.

Name of Variety	Remarks	B.H.
NAUR-1 (2007-08)	<ul style="list-style-type: none"> ➤ Medium long slender grains with yield potential of 6000 kg/ha. ➤ The variety is moderately resistant against major diseases like BLB, Blast, Grain discoloration, sheath rot & insect pest like stem borer. 	7081-A
GNR-2 (2009-10)	<ul style="list-style-type: none"> ➤ Fine grain variety with yield around 5000 kg/ha. Recommended for salt affected areas as well as for normal irrigated transplanted areas of South Gujarat. ➤ The variety is resistance to BLB, False smut, stem borer and BPH and while moderately resistance reaction against grain discoloration and leaf folder. 	7081-A
GNR-3 (2010-11)	<ul style="list-style-type: none"> ➤ Coarse grain variety suitable for beaten rice with grain yield around 6500 kg/ha. Recommended for irrigated as well as rainfed transplanted areas of South Gujarat. ➤ It is resistance to BLB and blight while moderately resistance reaction against grain discoloration, Stem borer, and leaf folder. 	5003
GNR-4 (2012-13)	<ul style="list-style-type: none"> ➤ Fine grain, red kernel bio fortified variety having high iron content (50 ppm) and dietary fibre (2.87 %) with yield potential of 4000 kg/ha. Recommended for irrigated transplanted areas of South Gujarat. ➤ It is resistance against BLB, False smut and moderately resistance against sheath rot, grain discoloration. Stem borer, leaf folder and gundhy bug. 	12946-C
PURNA (2014-15)	<ul style="list-style-type: none"> ➤ Short bold grain variety especially suitable for rainfed drilled condition with average yield of 3000 kg/ha. It performs well with 22% grain yield advantage over GR 5 and 8.8 % over GR 9. 	12946-C
GNR-5 (2015-16)	<ul style="list-style-type: none"> ➤ Long slender grain variety with yield around 5500 kg/ha. It performed very well in whole Gujarat where it exhibited overall 13.1 % and 21.2 % grain yield superiority with easy threshability over the checks Dandi and NAUR-1, respectively. It is recommended for salt affected areas of Gujarat. ➤ The variety is moderately resistant against bacterial leaf blight, grain discoloration and sheath rot. Whereas, it showed tolerant to pest like BPH and moderate resistance against stem borer, leaf folder and sheath mite 	7081-A

GNR-6 (2015-16)	<ul style="list-style-type: none"> ➤ GNR-6 performed well in whole Gujarat where it exhibited overall 8.5 % grain yield superiority over the check IR-28. Recommended for rainfed transplanted condition with average yield of 5000 kg/ha. ➤ With respect to pest and diseases, it was found superior to checks. 	2056
GNRH-1 (2015-16)	<ul style="list-style-type: none"> ➤ First public hybrid in Gujarat. Hybrid GNRH-1 performed very well in whole Gujarat under transplanted condition where it exhibited overall 10.1%, 11.9% and 17.1 % grain yield superiority over the checks viz., GR 7, NAUR 1 and Suruchi 5629, respectively. ➤ With respect to disease, it is moderately resistant against bacterial leaf blight, and sheath rot. For pests, it was found to be tolerant to stem borer and sheath mite. 	2056
GNR-7 (2016-17)	<ul style="list-style-type: none"> ➤ The rice Variety GNR-7 (5740 kg/ha) performed very well in South Gujarat where it exhibited overall 13.0 %, 22.8% and 12.4 % grain yield superiority with easy threshability over the checks GNR-2, GR-11 and GAR-13, respectively. ➤ It has short slender grain, high productive tillers and number of grains per panicle with good quality characters. GNR-7 is moderately resistant against bacterial leaf blight, grain discoloration and sheath rot. It showed tolerant to pest like BPH and moderate resistance against stem borer, leaf folder and sheath mite. ➤ Rice variety NVSR-6128 (GNR-7) recommended for normal rice growing areas of South Gujarat. 	7081-A
GR-15 (2017-18)	<ul style="list-style-type: none"> ➤ The biofortified rice variety GR-15 (5540 kg/ha) performed very well in Gujarat state and it exhibited overall 10.6 %, 19.9 % and 16.1 % grain yield superiority with easy threshability over the checks Dandi, NAUR-1 and GNR-3, respectively. ➤ It has long bold grain, long panicle, more productive tillers and more number of grains per panicle. It contains high zinc in grains (21.58 ppm) than check varieties along with other good quality characters. ➤ GR-15 is moderately resistant against bacterial leaf blight, grain discoloration and sheath rot. It is tolerant to brown plant hoppers and moderately resistant to stem borer, leaf folder and sheath mite. ➤ This variety recommended for transplanted rice growing areas of Gujarat. 	7081-A
GRH-2 (2017-18)	<ul style="list-style-type: none"> ➤ Mid-late rice hybrid GRH-2 (6129 kg/ha) performed well in Gujarat state where it exhibited overall 7.1%, and 17.9% grain yield superiority over the best hybrid check US 312, and best variety GNR-3, respectively. ➤ Medium slender grain rice hybrid GRH-2 contains intermediate amylose and high head rice recovery. The 	2056

	<p>GRH-2 is moderately resistant against bacterial leaf blight, leaf blast, grain discolouration and sheath rot. The proposed hybrid is tolerant to insect pest like BPH, WBPH, leaf folder and stem borer.</p> <p>➤ Rice hybrid GRH-2 recommended for rice growing areas of Gujarat state as GRH-2.</p>	
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ICAR (AICRIP) Project : B.H. 2056

- 80 high yielding rice varieties / hybrids were nominated to All India Coordinated Rice Improvement Project, Indian Institute of Rice Research, Rajendranagar, Hyderabad.

AICRIP Nominations:

Name of culture	Pedigree	Nominated Trial	IET Number	Year of nomination
NVSR-20	GR-4 x IET-1705	IVT-IME (TP)	IET-20115	<i>Kharif-2006</i>
NVSR-6029	GR-103 x Pokkali	NSASN	IET-21640	<i>Kharif-2009</i>
NVSR-6030	GR-103 x Pokkali	NSASN	IET-21641	<i>Kharif-2009</i>
NVSR-178	GR-4 x IR-28	IVT-IME (TP)	IET-22103	<i>Kharif-2010</i>
NVSR-304	NVSR-26 x Safed Kada	IVT-IME (TP)	IET-23307	<i>Kharif-2012</i>
NVSR-2031	IR-28 x NAUR-1	IVT-E (TP)	IET-23961	<i>Kharif-2013</i>
NVSR-2031	IR-28 x NAUR-1	IVT-VE (DS)	--	<i>Kharif-2013</i>
NVSR-303	NAUR-1 x Lal Kada	IVT-bio fortified	IET-23815	<i>Kharif-2013</i>
NVSR-2058	Lal Kada x GR-103	IVT-E-DS	--	<i>Kharif-2014</i>
NVSR-2051	GR-12 x IET-20528	IVT-VE-TP	--	<i>Kharif-2014</i>
NVSR-2057	Lal Kada x GR-103	IVT-VE-TP	--	<i>Kharif-2014</i>
NVSR-6137	Jaya x GR-6	CSTVT	IET-25075	<i>Kharif-2015</i>
NVSR-6100	Dandi x GR-7	CSTVT	IET-25058	<i>Kharif-2015</i>
NVSR-6128	GR-103 x GR-11	CSTVT	IET-25093	<i>Kharif-2015</i>
NVSR-6127	GR-103 x GR-11	IVT-MS	IET-25500	<i>Kharif-2015</i>
NVSR-6121	Bhura-rata x NAUR-1	IVT-IM	IET-25336	<i>Kharif-2015</i>
NVSR-2086	IR-65912-90-1-6-3-2R X Gurjari	IVT-IM	IET-25341	<i>Kharif-2015</i>
NVSR-2091	IR-65912-90-1-6-3-2R X GR-3	IVT-E	IET-25599	<i>Kharif-2015</i>
NVSR-324	IET-19044 X NVSR-172	IVT-IM	-	<i>Kharif-2016</i>
NVSR-326	IET-19044 X GNR-3	IVT-IM	-	<i>Kharif-2016</i>
NVSR-328	IET-19384 X NVSR-171	IVT-IM	-	<i>Kharif-2016</i>
NVSR-335	IET-19384 X NAUR-1	IVT-LATE	-	<i>Kharif-2016</i>
NVSR-338	IET-19384 X IET-19046	IVT-LATE	-	<i>Kharif-2016</i>
NVSR-2086	IR-28 X GR-3	IVT-E	-	<i>Kharif-2016</i>
NVSR-2090	IR-50 X GR-7	IVT-E	-	<i>Kharif-2016</i>
NVSR-2085	IR-65912-90-1-6-3-2R X Gurjari	IVT-E	-	<i>Kharif-2016</i>
NVSR-H-1003	NVSR-MS1A X 12SP-105	IHRT-E	-	<i>Kharif-2016</i>
NVSR-389	IET-19384 X Pawana	IVT-Late	-	<i>Kharif-2017</i>
NVSR-331	IET-19384 X NVSR-177	IVT-Late	-	<i>Kharif-2017</i>
NVSR-374	IET-19389 X Pawana	IVT-IM	-	<i>Kharif-2017</i>
NVSR-388	IET-19384 X Indrani	IVT-IM	-	<i>Kharif-2017</i>
NVSR-368	IET-19389 X Pusa Sugandha-5	IVT-IME	-	<i>Kharif-2017</i>
NVSR-360	IET-19389 X Leelabati	IVT-MS	-	<i>Kharif-2017</i>

NVSR-351	GR-11 X IET-19046	IVT-Biofort	-	<i>Kharif-2017</i>
NVSR-386	IET-19384 X Acharmati	IVT-Biofort	-	<i>Kharif-2017</i>
NVSR-335	IET-19384 X NAUR-1	IVT-Biofort	-	<i>Kharif-2017</i>
NVSR-6150	Dandi X IET-15429	IVT-CSTVT	-	<i>Kharif-2017</i>
NVSR-6130	GR-103 X NAUR-1	IVT-CSTVT	-	<i>Kharif-2017</i>
NVSR-6134	GR-103 X Gurjari	IVT-CSTVT	-	<i>Kharif-2017</i>
NVSR-H-1011	NVSR MS1A X 12SP10	IHRT-ME	-	<i>Kharif-2017</i>
NVSR-2103	Gurjari X PAU 201	IVT-E	-	<i>Kharif-2017</i>
NVSR-2120	Gurjari X Jaya	IVT-E	-	<i>Kharif-2017</i>
NVSR-2140	NAUR-1 X Pusa Basmati-1	IVT-E	-	<i>Kharif-2017</i>
NVSR-2153	IR-65912-90-1-6-3-2L X Gurjari	IVT-E	-	<i>Kharif-2017</i>
NVSR-2211	GR-5 X GR-4	IVT-E-DS	-	<i>Kharif-2017</i>
NVSR-2179	GR-5 X IR-28	IVT-VE-DS	-	<i>Kharif-2017</i>
NVSR-2230	GR-5 X Danteswari	IVT-VE-DS	-	<i>Kharif-2017</i>
NVSR-2233	GR-5 X Danteswari	IVT-VE-DS	-	<i>Kharif-2017</i>
NVSR-2115	Gurjari X PAU 201	IVT-IME	-	<i>Kharif-2017</i>
NVSR-2125	Gurjari X Jaya	IVT-IME	-	<i>Kharif-2017</i>
NVSR-2187	Gurjari X PAU 201	IVT-Aerobic	-	<i>Kharif-2017</i>
NVSR-2147	IR-65912-90-1-6-3-2L X Gurjari	IVT-Aerobic	-	<i>Kharif-2017</i>
NVSR- 405	IET-19347 x IRRI-AMT-119	IVT-IM	-	<i>Kharif-2018</i>
NVSR-406	IET-18347 x IRRI-AMT-301	IVT-ASG	-	<i>Kharif-2018</i>
NVSR-407	IET-19347 x GAR-1	IVT-ASG	-	<i>Kharif-2018</i>
NVSR-411	GNR-3 x PUSA-834	IVT-IME	-	<i>Kharif-2018</i>
NVSR-329	IET-19384 x NVSR-172	IVT-IME	-	<i>Kharif-2018</i>
NVSR-365	IET-19389 x Badshabhog	IVT-IM	-	<i>Kharif-2018</i>
NVSR-384	IET-19384 x Leelabati	IVT-IM	-	<i>Kharif-2018</i>
NVSR-399	NVSR-178 X IET-21682	IVT-Aerobic	-	<i>Kharif-2018</i>
NVSR-391	IET-19347 X IRR-AERO-1	IVT-Aerobic	-	<i>Kharif-2018</i>
NVSR-396	IET-19347 X RP-4015-129-07-03	IVT-Aerobic	-	<i>Kharif-2018</i>
NVSR- 395	IET-19347 X NAUR-1	IVT-Aerobic	-	<i>Kharif-2018</i>
NVSR-6146	Jaya x GR-11	IVT-CSTVT	-	<i>Kharif-2018</i>
NVSR-6147	GR-103 x SLR-51214	IVT-CSTVT	-	<i>Kharif-2018</i>
NVSR-6109	SLR-51214 x NVSR-26	IVT-IME	-	<i>Kharif-2018</i>
NVSR-360	IET-19389 X Leelabati	IVT-CSTVT	-	<i>Kharif-2018</i>
NVSR-2265	Gurjari x GR-5	IVT-E-DS	-	<i>Kharif-2018</i>
NVSR-2227	GR-5 X Danteswari	IVT-E-DS	-	<i>Kharif-2018</i>
NVSR-2285	Jaya x Purna	IVT-Aerobic	-	<i>Kharif-2018</i>
NVSR-2309	Gurjari x IET-22057	IVT-Aerobic	-	<i>Kharif-2018</i>
NVSR-2117	Gurjari x Jaya	IVT-E-TP	-	<i>Kharif-2018</i>
NVSR-2393	GR-7 x IR-63883	IVT-E-TP	-	<i>Kharif-2018</i>
NVSR-2395	GR-7 x IR-68883	IVT-E-TP	-	<i>Kharif-2018</i>
NVSR-2251	Gurjari x (NAUR-1 x IET-22072)	IVT-IME	-	<i>Kharif-2018</i>
NVSR-2261	Gurjari x (NAUR-1 x IET-22072)	IVT-IME	-	<i>Kharif-2018</i>
NVSR-2112	Gurjari x PAU-201	IVT-Aerobic	-	<i>Kharif-2018</i>
NVSR-2526	GAR-13 x JGL-3826	IVT-IME	-	<i>Kharif-2018</i>
NVSR-2528	GAR-13 x JGL-3826	IVT-MS	-	<i>Kharif-2018</i>
NVSR-2435	GAR-13 x Jaya	IVT-MS	-	<i>Kharif-2018</i>

➤ Numbers of AICRIP trials were conducted at MRRC, Navsari centre are as follows.

Trial indented and conducted	2011-12 (Allotted/ conducted)	2012-13 (Allotted/ conducted)	2013-14 (Allotted/ conducted)	2014-15 (Allotted/ conducted)	2015-16 (Allotted/ conducted)	2016-17 (Allotted/ conducted)	2017-18 (Allotted/ conducted)	2018-19 (Allotted/ conducted)
Plant Breeding	12/12	12/10	14/14	16/16	20/20	26/26	30/30	37/36
Hybrid Rice	3/3	6/6	4/4	4/4	3/3	4/4	4/4	4/4
Agronomy	3/3	3/3	4/4	4/4	5/5	6/6	7/7	6/6
Plant pathology	5/5	7/7	8/6	8/8	9/9	11/11	12/12	10/10
Entomology	8/8	12/12	8/8	10/10	9/9	6/6	10/10	9/9
FLDs	-	-	-	5 ha	5 ha	10 ha	20 ha	30 ha

Crop Production :

- Production of nucleus/breeder seed (about 60 quintals) of released varieties through panicle to row system. We are producer of Foundation and certified seed of our released varieties (about 2500 quintals).
- The following agro technologies for paddy have been recommended for the farmers of South Gujarat.

Recommendations for farmers		B.H.
Year: 2007-08		7081-A
1.	The farmers of south Gujarat heavy rainfall zone (AES-III) growing <i>summer</i> paddy are advised to adopt puddling with power tiller and re irrigate the crop 3 to 5 days after disappearance of water.	
Year : 2008-09		7081-A
2.	The farmers of south Gujarat heavy rainfall zone (AES-III) growing <i>kharif</i> paddy are advised to transplanting 20 days old seedling at space of 20X25 cm for securing higher yield and net profit.	
Year : 2009-10		5003
3.	The farmers of AES-III of south Gujarat agro climatic zone -I following paddy(<i>Kharif</i>) - gram(<i>Rabi</i>) sequence are advised to adopt earlier recommended practices for transplanted paddy cultivation (puddling, transplanting of 25-30 days old 2-3 seedlings per hill at a spacing of 20*15) to realize higher net profit (22%) on sequence basis as compared to farmers practice. This is confirmation of earlier recommendation of paddy cultivation.	
4.	The farmers of south Gujarat heavy rainfall zone (AES-III) growing paddy(<i>Kharif</i>)-casser(<i>Rabi</i>) sequence are advised to grow dhaincha as green manure crop prior to <i>Kharif</i> paddy and apply recommended dose to paddy (100-30NP Kg/ha) and castor (80-	7081-A

	40NP Kg/ha) crops for realizing higher net profit (34822Rs./ha) with BCR of 1:1.84. This practice of nutrient management in paddy (<i>Kharif</i>) -castor (<i>Rabi</i>) sequence also sustains soil fertility.	
Year : 2011-12		
5.	<p>The farmers of south Gujarat heavy rainfall zone (AES-III) growing paddy are advised to adopt SRI method (10-12 days old single seedling per hill at 25cm x 25cm spacing) to realize higher net income(42,383 Rs/ha) with CBR of 1:2.47.</p> <p>Alternatively from water saving (40%) point of view , they are advised to adopt aerobic sowing (irrigated drilled) of rice at a row spacing of 30 cm to get higher cost : benefit ratio (1:2.36) as compare to conventional paddy cultivation.</p>	12946-C
Year : 2012-13		
6.	The farmers of South Gujarat heavy rainfall zone (AES III) growing irrigated drilled paddy(aerobic rice) are advised to apply pendimethalein @ 1.0 kg a.i./ha as pre emergence for effective weed control or hand weeding followed by inter cultureing at 20 and 40 DAS or Bispyribac sodium10% sc 10ml/lit water as post emergence at20 DAS.for effective weed control and realizing higher net income	5003
7.	The farmers of south Gujarat heavy rainfall zone (AES-III) intended to follow aerobic rice cultivation are advised to prefer NAUR-1 variety. They are further advised to use 40 kg/ha seed rate and sow their crop at 30 cm row spacing. By adopting these practices, they can get higher yield and net return.	12946-C
8.	The farmers of South Gujarat heavy rainfall zone (AES III) growing irrigated drilled paddy (aerobic rice) are advised to apply pendimethalein @ 1.0 kg a.i./ha as pre emergence for effective weed control or hand weeding followed by inter cultureing at 20 and 40 DAS or Bispyribac sodium10% sc 10ml/lit water as post emergence at 20 DAS.for effective weed control and realizing higher net income.	2056
Year : 2016-17		
9.	The rice growing farmers of South Gujarat heavy rainfall zone (AES-III) are advised to adopt transplanted method for variety GNR-3 or NAUR-1. They also advised to grow greengram (CO-4) in rabi season for getting higher net returns in rice based crop sequence.	5003
10.	The transplanted rice growing farmers of South Gujarat heavy rainfall zone (AES-III) are advised to grow iron rich variety GNR-4, which gives higher net returns. Further for iron bio fortification in rice varieties GNR-4 or GAR-13, they are advised to spray 1% banana pseudostem enriched sap at tillering and panicle initiation stages for increasing iron content in rice grain.	7081-A
11.	The SRI method of crop establishment along with 100% RDN remarkably reduced the CH4 emission and increased rice productivity but considerably increased the emmision of N2O. Application of organics alone or in combination with inorganic fertilizers improved the rice yield and soil properties but more	12946-C

	pronounced to emit CH ₄ from the rice field. Therefore, there is need to develop efficient nutrient management practices in context of future global warming.	
Year : 2017-18		
12.	The farmer of South Gujarat heavy rainfall zone growing rice prefer hybrids during <i>kharif</i> season are advised to fertilized the crop @ 125:37.5:00 NPK kg + 10 t FYM/ ha for getting higher yield and net returns.	7081-A
13.	The <i>kharif</i> rice growing farmers of South Gujarat heavy rainfall zone are advised to grow rice hybrid by using 18 days old seedlings transplanted at 25 x 25 cm spacing and fertilized the crop with 10 t /ha FYM + brickets (60 Urea: 40 DAP) for getting higher yield and net returns.	12946-C

Crop Protection:

The following control measures of paddy for pests and diseases have been recommended for the farmers of South Gujarat.

Recommendations for farmers		B.H.
Year: 2007-08		7081-A
1.	The farmers sowing rice variety susceptible to bacterial blight are advised to spray streptomycin (1g) + Copper oxychloride (10g/20 lit) (CBR1:3.80) or copper hydroxide (kocide 50 g/20 lit) (CBR1:1.64) to manage bacterial blight effectively and to get more yield and income in endemic area of bacterial blight.	
2.	<p>The paddy growers of South Gujarat are advised to apply IPDM practices as under to get more yield (5363 and 6500 : grain and straw kg/ha) and net profit with higher CBR (1:25.75) than farmers practices (4550 and 5570 grain and straw yield kg/ha with CBR 1: 7.69)</p> <p>The IPDM includes:</p> <ol style="list-style-type: none"> 1. Dead heart of stem borer should be removed before transplanting 2. Seedling roots should be deepened in <i>Azospirillum</i> biofertilizer for 15 minutes before planting so as to meet 30 kg N requirement out of 100 kg N/ha., recommended for paddy. 3. Pest should be monitored at weekly interval. 4. Bunds should be cleaned and alternate host should be removed before planting 5. Paddy straw should be broadcasted in field and certain heaps of paddy straw should be made around the field to conserve the spiders. 6. Nursery should be treated with 10 kg Carbofuran 3G@1000 m² at 15 DAS than spray Monocrotophos 0.036 % (15 and 40 DAT) and Imidacloprid 0.005% at 65 DAT. 7. One spray of mancozeb-45 0.3 % should be applied at panicle emergence to control grain discoloration. 	7081-A

Year : 2009-10		
3	The paddy growers of South Gujarat Agro-climate zone are advised to apply three sprays of Carbendazim 12 WP + Mancozeb 63 WP (15/10lit) or Hexaconazole 5 EC 0.01 % (20ml/10 lit) for effective control of grain discoloration and to harvest higher healthy grain and straw yield. The first spray should be given at boot leaf stage and the remaining two sprays thereafter at 10 days interval.	7081-A
Year : 2010-11		
4	The paddy growing farmers of South Gujarat are recommended to apply any one the following insecticides viz. Spinosad (CBR 1: 14.31), Profenophos (CBR 1: 12.32), and DDVP (CBR 1 :11.74), following economic threshold level as 2 damaged leaves per hills for the control of rice leaf folder.	7081-A
Year : 2011-12		
5	Paddy growing farmers of South Gujarat AES- III are recommended to spray Ethion 50 EC, 0.05 % + Mancozeb 75 WP, 0.25 % (10 ml Ethion + 33 g Mancozeb in 10 lit water) on initiation of sheath mite for effective control of sheath mite as well as grain discoloration and to get higher grain yield and net profit. The waiting period of Ethion 50 EC, 0.05 % + Mancozeb 75 WP, 0.25 % should be maintained 42 days after last application.	5003
Year: 2013-14		
6	The farmers of AES III of South Gujarat zone growing transplanted rice during summer are advised to treat the seed with thiourea @ 1000 mg/lit,12 hours before sowing and also spray thiourea solution of 1000 ppm (1 gm/litre) at second leaf stage of rice nursery for obtaining higher grain yield and more net profit.	12946-C
Year: 2015-16		
7	The paddy growers of South Gujarat agro-climate zone I (AES III) are advised to apply three sprays of propiconazole 25 EC, 0.025 % (10 ml/10 l.) or trifloxystrobin 25% + tebuconazole 50%,(75 WG) 0.03 % (4 gm/10 l.) for effective control of grain discoloration and to harvest higher healthy grain and straw yield. The first spray should be given at boot leaf stage and the remaining two sprays there after at 10 days interval.	7081-A
8	Rice genotypes viz., IR-BB2, IR-BB11, IR-BB50, IR-BB62 and IR 11A334 were found to have multiple resistant reaction against Bacterial blight and Sheath rot diseases under artificial inoculation and high disease pressure conditions in the field and Grain discoloration by natural field condition.	7081-A
9	Rice genotypes viz., CB 602, CB09-516, HKR 06-47, IRBB-2, IRBB-50, IR 77498-47-2-6 2-3, NVSR-6137 and NVSR-H-1001 were found to have multiple resistant reaction against stem borer, leaf folder and brown plant hopper under natural field conditions. These entries should be used as a variety or as a source of resistant donor in resistant breeding programme.	5003
Year: 2016-17		
10	Rice varieties viz., Dandi, Masuri and Jaya were found to have resistance reaction against rice stem borer and varieties like NAUR-1, GNR-2, 3, Gurjari and GR-5, 7, 8, 10, 104 and Narmada were found	7081-A

	to have moderately resistance reaction against rice stem borer under natural field conditions. Whereas varieties GNR-4, GR-4, 6, 9 and 103 have moderately susceptible reactions against stem borer under natural field conditions.	
11	Spray emamectin benzoate 5 WSG 0.015 % or imidacloprid 17.8 SL 0.005 % twice, first at the appearance of pest and second at 15 days after the first application is suggested for the effective control of rice gundhi bug.	7081-A
12	The paddy growers of south Gujarat are advised to apply two sprays of fenpyroximate 5 SC @ 0.005% (10 ml/10 litre of water) or difenthiuron 50 WP @ 0.05% (10 g/10 litre of water) or chlorfenapyr 10 SC @ 0.015% (15 ml/10 litre of water) for the effective control of rice sheath mite. The first spray should be given at appearance of sheath mite (at flag leaf stage) and the second spray at 15 days after first spray.	12946-C
13	The paddy growers of south Gujarat are advised to apply two sprays of flubendiamide 20 WG @ 0.005% (2.5 gm/10 litre) or chlorantraniliprole 18.5 SC @ 0.006% (3 ml/10 litre) first at the appearance of pest and second at 15 days after the first application for effective control of rice stem borer.	5003
Year: 2017-18		
14	The rice growers of South Gujarat Agro-climate zone I (AES-I) are recommended to apply two sprays of <i>P. fluorescens</i> Waghai or <i>P. fluorescens</i> Navsari isolate @ 6 ml/l. foliar spray (10^8 cfu/ml) for effective management of leaf and neck blast and to get higher grain and straw yields. The first spray should be given at initiation of disease and second spray at the time of panicle emergence.	12946-C
15	Rice genotypes viz., IET-23832, IET-22015, NVSR-6100 and NVSR-6137 were found multiple resistant against bacterial blight and sheath rot diseases under artificial inoculation and high disease pressure in the field and grain discoloration in normal field condition.	7081-A
16	Rice genotypes viz., NVSR-348, NVSR-351, IET-18710 and NVSR-6121 were found multiple resistant against bacterial blight disease by artificial inoculation under field condition.	5003
17	Rice genotypes viz., NWGR-7011, NWGR-9088, IET-23189 and IET-22629 are showed multi-resistant reactions against rice stem borer and sheath mite. These entries should be used as a variety or as a source of resistant donor in resistant breeding programme.	7081-A

Summary of technologies / recommendations for farmers

Discipline	Technology recommended	Number
Crop Improvement	Release varieties / hybrids	9
	Varieties / hybrids nominated at national level	80
Crop production	Agro techniques developed	24
Crop protection	Entomology recommendations: 21	48
	Plant Pathology recommendations: 27	

Rice Seed Production at MRRC, Navsari :-

Variety	2013-14		2014-15		2015-16		2016-17		2017-18	
	Breeder seed (kg)	Foundation seed (kg)								
NAUR-1	920	-	830	-	500	-	560	-	900	-
GNR-2	740	-	880	-	525	-	490	-	530	-
GNR-3	800	-	770	-	1350	-	1190	6380	2100	4480
GNR-4	430	-	470	-	425	-	210	-	390	-
GNR-5	-	-	-	-	-	-	680	-	585	-
GNR-7	-	-	-	-	-	-	550	-	305	-