Achievement, WRS, Bardoli

❖ **Contribution in release of Varieties:**

Bardoli is the testing center for wheat and paddy crops. This station has contributed in the release of the following wheat varieties from Main Wheat Research Centre, SDAU, Vijapur and Main Rice Research Station, NAU, Navsari

Sr. No.	Name of crop	Name of Verities	Year of released	Chief characteristics
1.	**Wheat**	**GW-273**	**1997**	High yielding & early maturing than GW-190 by one week.
2.	**Wheat**	**GW-1139 (Durum)**	**1999**	Early maturity, high protein content & excellent bread making properties and very good resistant to grain shattering suitable for normal sowing.
3.	**Wheat**	**GW-322**	**2003**	High yielding than GW-273 & midlate and medium grain with good luster.
4.	**Wheat**	**GW-496**	**1989**	Semi erect, good tillering, stem color deep with blooming & pale green hair auricle, grains hard, amber colour, har texture, medium size, very good
5.	**Wheat**	**GW-173**	**1992**	Dwarf, extra early maturing intermediate growth habit, stem color light green with blooming & pale auricle, grain amber colour, small, lustrous hard, very good protein content, good chapatti making properties.
6.	Paddy	GR-12	2005	Non-lodging & shattering and easy to thresh, good cooking quality with fine grain.
7	**Wheat**	**GW-11**	**2009**	Suitable for timely sowing with limited irrigation (3 irrigation)
8	Paddy	GNR-2	2010 (GR-103 x Pokkali)	Salt tolerant, Fine Grain, Superior over GR-11 non scented with good cooking quality
9	Paddy	GNRH 1 **(Hybrid rice)**	2015 (NVSR-MS1 x 12SP105)	Superiority over the GR 7, NAUR 1 & Suruchi 5629, Kernel Length & breadth 7.50mm & 2.11 mm & L/B ratio 3.55mm, moderately resistant against BLB & SR, moderately tolerant reaction against SB & SM
10	Paddy	GR 16 (Tapi)	2018 (GR-5 x Danteswari)	Early maturing upland rice variety GR-16 recorded 2983 kg/ha mean grain yield in Gujarat. It exhibited overall 10.6 and 29.0 per cent grain yield superiority over the checks Purna and GR 5, respectively.
	Paddy	GR 17 (Sardar)	2018 (Gurjari x Jaya)	The average yield of early maturing rice variety GR-17 is 5566 kg/ha in Gujarat. It exhibited overall 15.4, 9.8 and 2.2 per cent grain yield superiority over the checks Jaya, Gurjari and GNR-3, respectively in addition to earliness by 8 days over GNR-3. Long bold grain rice culture GR-17 possesses good grain quality, intermediate amylose and high head rice recovery. The proposed variety is moderately resistant against bacterial leaf blight, leaf blast, grain discoloration and sheath rot. The proposed variety showed moderately resistant reaction against WBPH and leaf folder. Rice variety NVSR-2117 is recommended for transplanted rice growing areas of Gujarat as GR17.
11	**Wheat**	**GW 499**	**2019**	Late sown irrigated, Yield 49.75 qt/ha, high protein quality (13.9%), Zinc (50.99 ppm) and good chapatti making properties.
12	Paddy	GNR 8 (Arti)	2020 (IET-19347 x RP-4075-129-07-3)	The early maturing rice culture, GNR-8 (4700 kg/ha) performed very well in South Gujarat under aerobic condition and it exhibited overall 18.6 % and 13.9 % grain yield superiority with easy threshability over the checks NAUR-1 and GNR-3, respectively. It has long bold grain, more productive tillers and more number of grains per panicle. It contains good amount of amylose content (24.42%), protein content (6.52%) and high head rice recovery (64.2%). GNR-8 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 NVSR-396 (GNR-8) recommended for aerobic rice growing areas of Gujarat.

13	Paddy	GR 18 (Devli Kolam)	2020 (GAR-13 x JGL-3828)	Early maturing, nonlodging culture NVSR-2528 showed 29.06 % and 8.38 % grain yield superiority over checks GR-4 and Mahisagar, respectively. The culture NVSR 2528 performed very well in South Gujarat where it exhibited overall 35.6 per cent grain yield superiority over check GR 4 with moderately resistant against LB, GD & SR, moderately tolerant reaction against WBPH, SB, LF & SM. Rice variety NVSR-2528 (GR-18) recommended for transplanted rice growing areas of Gujarat
14	Paddy	GNR 9 (Lalkada Gold)	2021 (IR 28 x Lalkada)	The nutritionally rich red rice variety GNR 9, (Lal Kada Gold) (NVSR-2756) (4200 kg/ha) performed well in Gujarat state where it exhibited overall 40.4 % and 19.7 % grain yield superiority over check varieties Lalkada and GNR-4, respectively.
15	Paddy	GR-24 (Parimal)	2022 (Gurjari x IR-28)	The early maturing, nonlodging rice variety GR-24 (Parimal) in transplanted condition during kharif season. The proposed genotype recorded an average grain yield of 5038 kg/ha in Gujarat, which was 21.8 %, 9.9 %, 9.0% and 4.8 % higher over the check varieties GR-7, GR-15, GAR-3 and GNR-5, respectively.

❖ **Research Recommendations Made for the farmers:**

1. Centre Contributing to the testing of the early maturing, nonlodging rice variety GR-24 (Parimal) in transplanted condition during kharif season. The proposed genotype recorded average grain yield of 5038 kg/ha in Gujarat, which was 21.8 %, 9.9 %, 9.0% and 4.8 % higher over the check varieties GR-7, GR-15, GAR-3 and GNR-5, respectively. Long slender grain rice variety GR-24 contains intermediate amylose (24.8%) and medium head rice recovery (58.2%). The proposed variety showed moderately resistant against leaf blast disease and brown plant hopper and white backed plant hopper pests. **(Year of recommendation, 2021-22)**
2. Centre Contributing to the testing of the nutritionally rich red rice variety GNR 9, (Lal Kada Gold) (NVSR-2756) (4200 kg/ha) performed well in Gujarat state where it exhibited overall 40.4 % and 19.7 % grain yield superiority over check varieties Lalkada and GNR-4, respectively. Long slender grain rice variety NVSR-2756 contains intermediate amylose (21.5%) with high head rice recovery (56.24%) with Protein (8.44 %), 3.4 ppm Ironand 19.17 ppm Zinc in polished rice. The proposed variety showed moderately resistant against leaf blast. NVSR-2756 is moderately resistant to stem borer, Leaf folder and sheath mite. Rice variety NVSR-2756 recommended for rice growing areas of Gujarat as GNR 9 (Lalkada Gold). **(Year of recommendation, 2020-21)**
3. Centre Contributing to the testing of var. GW 499, which was released year, 2020, from Main Wheat Research Centre, SDAU, Vijapur, and the Farmer of south Gujarat growing wheat under irrigated conditions and rice-wheat cropping sequence strong in south Gujarat. So, recommended the var. GW 499 for late sown, early maturing, high-temperature tolerance, and high yield variety for south Gujarat farmers. **(Year of recommendation, 2019-2020)**

4. Centre Contributing to the testing of var. GNR 8 (Arti), which was released year, 2019, from Main Rice Research Centre, NAU, Navsari, and The early maturing rice culture, GNR 8 (4700 kg/ha) performed very well in South Gujarat under **aerobic conditions** and it exhibited an overall 18.6 % and 15.2 % grain yield superiority with easy threshability over the checks NAUR-1 and GNR-3, respectively. It has long bold grain, more productive tillers, and more number of grains per panicle, and is recommended for aerobic rice growing areas for the Farmer of south Gujarat growing rice under irrigated conditions. **(Year of recommendation, 2019-2020)**
5. Centre Contributing to the testing of the rice variety GR 18 (Devli Kolam) (5462 kg/ha) performed well in Gujarat state where it exhibited overall 29.1 %, and 8.4 % grain yield superiority over check varieties GR-4 and Mahisagar, respectively and Early maturing, non-lodging culture. The proposed variety showed moderately resistant against leaf blast, grain discoloration and sheath rot. The proposed variety showed moderately tolerant reaction against white backed plant hopper, leaf folder, stem borer and sheath mite. Rice variety GR 18 recommended for rice growing areas of Gujarat. Due to early maturity, the Farmer of south Gujarat grows wheat under irrigated conditions in the next season also because of rice-wheat cropping sequence is strong in south Gujarat. **(Year of recommendation, 2019-2020)**
6. It is recommended to the farmers of South Gujarat growing high yielding high nitrogen responsive bacterial blight susceptible rice varieties such as GR-11 in the endemic bacterial blight area to apply 100kg/ha nitrogen, either from neem cake, coaltar coated urea or urea or mmonium sulphate in three splits, viz; 40% nitrogen at the time of transplanting, 40% nitrogen at tillering stage and 20% nitrogen at panicle initiation; to save the crop from the bacterial blight damage and loss of yield. The increased dose of the nitrogen beyond the optimum dose (i.e.100 kg N/ha) of nitrogen to the rice was found responsible for the increasing trend of bacterial blight damage resulting in drastic reduction of yield.
7. The farmers of south Gujarat Agro climatic zone. Situation III following the paddy wheat cropping sequence are advised to apply the recommended individual crop close of N & P specific to both the crop for getting the economical return. **(Year of recommendation 1992-93)**
8. The farmers of south Gujarat Agro climatic zone situation III following Paddy - wheat cropping sequence. Apply P_20_5 @ 100 % of recommended dose to paddy and 50 % of the recommended dose to wheat crop. It will give the same income as 100 % the recommended dose to wheat crop. It will give the same income as 100 % the recommended does to end crop. **(Year of recommendation - 1993-94).**

❖ Other Agency Project (B.H.:18228)

1. Effect of Seaweed Extract (*Ascophyllum nodosum*) on the productivity of wheat:

Recommended that, with an increase in the volume of dose of the seaweed extract, it was observed that significant increase in grain yield and its related traits except for Biomass. In all the traits the significant influence of the seaweed extract was started with a T3, with the volume of the dose being 2.5 ml (T3), and from T3 to increase the volume of dose 3.0 ml (T4), 4.0 ml (T5), and 5.0 ml (T6), the grain yield and yield relative traits increase significantly, and T6 (5.0 ml/Lit) with 3966.74 Kg yield is the best and statistically at par treatment for all the traits in the present studies. **(Year of recommendation – 2021-22).**

❖ Publication:

1. Response of *Kharif* rice to nitrogen level and its time of application in presence of crop residues. Published in state-level seminar on integrated nutrient management in rice sugarcane-based cropping system. 19th August 2002 By Prof P. B. Patel, N. N. Lad and Dr. D. U. Patel
2. **ઘઉ પાક ઉત્પાદન વધારવાના ચાવીરૂપ મુદ્દાઓ રવીઋતુ પૂર્વેની તાલીમ નિષ્ણાંત વ્યાખાન નોંધ લેખક, પ્રો.પી.બી.પટેલ**
3. **ઘઉંની આધુનિક ખેતી પધ્ધતિ નર્મદા કિશાન પરિવાર, નવેમ્બર, ૨૦૦૪, લેખક, પ્રો.પી.બી.પટેલ**
4. **દક્ષિણ ગુજરાતમાં ચોમાસુ પાક લીધા બાદ મોડી વાવણી થી ઘઉંની સફળ ખેતી કરો. કૃષિ મહોત્સવ, ૨૦૧૦, સ્મરણિકા લેખક, પ્રો.પી.બી.પટેલ અને પ્રો.એમ.ડી.લાડ**
5. **દક્ષિણ ગુજરાતમાં ઘઉંના પાકનું મહત્વ અને વૈજ્ઞાનિક ખેતી પધ્ધતિ, લેખક, ડો. આર. ડી. વેકરીયા, પ્રો. એમ. ડી. લાડ અને શ્રી. એ. વી. માલવિયા, ઘઉં સંશોધન કેન્દ્ર, ન.કૃ.યુ., બારડોલી,પ્રકાશન નં :.૩૬/૨૦૨૦-૨૧.**
6. Patel, J. M., Vekariya, R. D., Patel, S. K., Patel, C. R., Malviya, A. V. and Chaudhary, S. M., Evaluation of bread wheat (*Triticum aestivum*) genotypes using drought susceptible and tolerance efficiency indices under irrigated and drought stress environment. *Res. on Crops*., 22 (3): 492-500 (2021)

Seed Production: - (2007-08 to 2021-22)

Year	Season	Corp	Variety	Stage	Area (Ha)	prod. (Kg)	Productivity kg/ha
2007-08	Kharif	Paddy	GR-3	Foundation	1.17	4595	3927
		-,,-	Gurjari	Certified	1.50	4250	2833
		-,,-	Jaya	-,,-	4.97	24990	5028
	Rabi	Wheat	Lok-1	Breeder	1.97	8100	4112
		-,,-	GW-496	-,,-	2.16	7700	3565
2008-09	Kharif	Paddy	GR-3	Foundation	0.90	4060	4511
		--,,-	Gurjari	Certified	0.50	2365	4730
		-,,-	Jaya	-,,-	5.90	28730	4869
	Rabi	Wheat	Lok-1	Breeder	2.55	7410	2495
		-,,-	GW-496	-,,-	2.97	5985	2347
2009-10	Kharif	Paddy	GR-3	Foundation	1.00	4650	4650
		-,,-	Gurjari	Certified	1.00	4520	4520
		-,,-	Jaya	-,,-	5.21	30230	5802
	Rabi	Wheat	Lok-1	Breeder	2.96	8020	2710
			GW-496	-,,-	2.63	6620	2517
2010-11	Kharif	Paddy	Gurjari	Certified	0.90	3350	3722
		-,,-	Jaya	-,,-	6.26	28900	4616
	Rabi	Wheat	Lok-1	Breeder	2.92	9800	3356
			GW-496	-,,-	3.03	8950	2953
2011-12	Kharif	Paddy	Gurjari	Certified	0.90	3150	3500
		-,,-	Jaya	-,,-	6.26	30030	4797
	Rabi	Wheat	GW-496	-,,-	3.09	11555	3739
		s'cane	Co 86032	F1	1.18	114 tones	96 tones
	Summer	Paddy	Gurjari	truthful	0.50	2170	4340
		Green Gram	Meha	"-"	1.10	1400	1272
2012-13	kharif	Paddy	Jaya	Certified	5.30	24,990	4715
		-"-	GNR.3	truthful	0.40	1845	4612
	Rabi	Wheat	Lok 1	Breeder	5.00	15340	3068
		s'cane	Co 86032	General Ratoon	1.18	67 Tone	57 Tone
2013-14	Kharif	Paddy	Jaya	Foundation	2.00	8470	4235
			-"-	Certified	3.60	13280	3688
		-,,-	GNR-3	Truthful	0.40	1100	2750
	Rabi	Wheat	Lok.1	Breeder	5.00	12800	2560
		-"-	Lok 1	Truth ful	0.20	650	3250
		-"-	GW 496	Truth	0.10	370	3700
	Summer	G. Gram	Meha	Certified	1.20	1500	1250
15-2014	Kharif	Paddy	jaya	Foundation	2.11	11330	5370
		--,,-	Jaya	Certified	4.80	23940	4987
		-,,-	GNR 3	Truthful	0.50	2865	5730
	Rabi	Wheat	Lok-1	Breeder	3.00	11100	3557
		-,,-	GW-496	-,,-	1.00	2500	2500
	Summer	Paddy	Jaya	Truthful	0.60	2800	4666
			G. gram	Certified	1.83	1980	1081

2015-16	Kharif	Paddy	Jaya	Foundation	0.79	3920	4962
		--,,-	Jaya	Certified	6.51	31430	4827
		Wheat	**Lok-1**	**Breeder**	3.02	**9220**	3053
	Rabi	**-„-**	**Lok.1**	**Truthful**	1.10	**3720**	3381
			GW-496	**Truthful**	1.00	**2820**	2820
	Summer	Greem gram	meha	Foundation	0.80	740	**925**
			meha	Certified	0.80	910	**1138**
2016-17	Kharif	Paddy	Jaya	Foundation	0.79	3380	4225
		--,,-	Jaya	Certified	4.42	18815	4406
			GNR 3	Certified	1.00	4870	4870
	Rabi	**Wheat**	**Lok-1**	**Breeder**	**3.00**	**7900**	2633
		-„-	**Lok.1**	**Truthful**	**0.98**	**2945**	2945
			GW-496	**Truthful**	1.13	2215	2215
	Summer	G.Gram	Meha	**Certified**	1.20	1400	1166
2017-18	Kharif	Paddy	Jaya	Foundation	0.79	3810	4762
		--,,-	Jaya	Certified	3.60	16940	4705
			GNR 3	Certified	2.00	8330	4165
	Rabi	**Wheat**	**Lok-1**	**Breeder**	**2.00**	**6080**	3040
		-„-	**Lok.1**	**Truthful**	**0.84**	**2105**	2476
			GW-496	**Breeder**	1.00	2742	2742
			GW-496	**Truthful**	1.00	2530	2530
	Summer	G.Gram	GM-6	Truthful	1.60	1440	900
2018-19	Kharif	Paddy	Jaya	Foundation	0.42	2170	5166
			Jaya	Certified	3.43	18480	5387
			GNR 3	Certified	2.15	9940	4623
			GNR-7	**Truthful**	0.79	4060	5139
	Rabi	**Wheat**	**Lok-1**	**Breeder**	2.11	6080	2882
		-„-	**Lok.1**	**Truthful**	0.84	2105	2506
			GW-496	**Breeder**	1.00	2920	2920
			GW-496	**Truthful**	1.25	3360	2688
	Summer	G.Gram	GM-6	Truthful	1.60	1160	725
2019-20	Kharif	Paddy	Jaya	Foundation	0.90	4015	4461
			Jaya	Certified	2.50	11505	4602
			GNR 3	Certified	2.94	12840	4367
			GR-17	**Truthful**	0.80	2425	3032
	Rabi	**Wheat**	Lok-1	Breeder	1.00	3400	3400
		-„-	Lok.1	Truthful	1.20	3200	2666
			GW-496	Breeder	2.00	5120	2560
			GW-496	Truthful	1.09	2320	2128
	Summer	G.Gram	GM-7	Foundation	0.80	1200	1500
		Paddy	GRH-2	Truthful	0.80	570	712
2020-21	**Kharif**	**Paddy**	Jaya	Foundation	0.90	4270	4744
			Jaya	Certified	2.40	10570	4404
			GNR 3	Certified	2.80	12110	4325
			GR-17	Truthful	0.80	3180	3975
	Rabi	**Wheat**	Lok-1	Breeder	1.00	2320	2320
		-„-	Lok.1	Truthful	1.00	1960	1960
			GW-496	Breeder	2.00	5320	2660
			GW-496	Truthful	2.00	3720	1860
			GW-451	Truthful	0.28	475	1696
	Summer	**G. Gram**	GM-7	Foundation	0.80	1100	1375

2021-22	**Kharif**	**Paddy**	Jaya	Certified	0.80	3750	4688
		--,,-	GNR 3	Foundation	0.90	4200	4667
			GNR 3	Certified	2.40	7890	3288
			GR 17	Truthful	2.40	10025	4177
	Rabi	**Wheat**	GW-499	Breeder	1.00	2800	2800
			GW-499	Truthful	0.20	180	900
		-,,-	GW-496	Breeder	2.00	5840	2920
			GW-496	Truthful	1.20	3200	2667
			Lok.1	Truthful	1.00	2680	2680
			GW-451	Truthful	0.20	300	1500
		Gram	GG-5	Truthful	0.40	340	850
	Summer	**G. Gram**	GM-7	Foundation	0.80	530	663