

Information on AICRIP centre – Pantnagar

1.	Name of the University/ Department under which the centre is functioning:	Department of Genetics & Plant Breeding, College of Agriculture, G.B.P.U.A.&T. Pantnagar, U.S. Nagar, Uttrakhand	
2.	Name of the centre with postal address, tel. & fax e-mail:	Department of Genetics & Plant Breeding, College of Agriculture, G.B.P.U.A.&T. Pantnagar263-145, U.S. Nagar, Uttrakhand Tel. : 05944 – 234398, 233350 Extn.4430 Fax : 05944 - 233473 E-mail : scmani@gmail.com	
3.	Name of the person in-charge with e-mail ID & mobile phone no.:	Dr. S.C. Mani, Professor, Genetics & Plant Breeding scmani@gmail.com 9411160057	
4.	Next contact person with e-mail ID & mobile phone no.:	Dr. Sumer Pal Singh, Rice Breeder/SRO risalsingh2001@yahoo.co.in 9411324842	
5.	Year of establishment as AICRIP centre:	1975	
6.	List of scientist currently on AICRIP roll-discipline wise:	Name Discipline	
		Dr. Sumer Pal Singh Rice Breeder Dr. D. K. Singh Agronomist Dr. A.P. Sinha Pathologist Dr. S. N. Tiwari Entomologist Dr. Alok Shukla Plant Physiologist Advertised Junior Rice Breeder	
7.	List of other AICRIP staff:	Name Post	
		Sri Bhim Singh, Field Assistant Sri M.K. Sharma, -do- Sri Sharda Prasad -do- Sri Girja Shankar Shukla -do- Sri M. K. Saxena Jeep Driver / Tractor Driver Stenographer -	
8.	Region of the state represented by the centre:	Region 2 nd North Western	
9.	Rice ecologies represented:	Irrigated (plains and valleys) Rainfed (hills)	
10.	Districts of the state covered:	All the thirteen districts	
11.	Rice area in each of these districts-ecology wise:	2006-07	

		District	Area (ha.)
		Chamoli	13490
		Dehradun (plain)	10127
		Dehradun (hill)	2043
		Hardwar	11654
		Pauri Garhwal	24261
		Rudraprayag	10394
		Tehri Garhwal	12820
		Uttarkashi	12746
		Almora	24133
		Bageshwar	15439
		Champawat	9379
		Nainital (plain)	9819
		Nainital (hill)	2420
		Pithoragarh	21022
		Udham Singh Nagar	93588
		Total area under hills	148147
		Total area under plains	125188
		Total	273335
12.	Normal rainfall:	1000-2000 mm	
13.	Soil type & fertility status:	<p>The soil, climate and irrigation facilities vary greatly from place to place in this Himalayan state. The climate varies from subtropical to temperate. The annual rainfall ranges from 1000-2000 mm and temperature varies from less than freezing point in higher hills to more than 35°C in plains. The two districts in the plains have good natural resources to grow irrigated rice, while in 11 hilly districts, the irrigated rice cultivation is confined only in valley areas. About 90 per cent of the rice area in the hills is rainfed. The soil type and fertility status at Pantnagar Centre is silty clay loam to clay loam with low nitrogen medium phosphorus and potash, respectively.</p>	
14.	Recommended popular rice varieties:	<ul style="list-style-type: none"> • Lower hills / valleys (upto 900 m) Pant <i>Dhan</i> 11, Govind, Saket 4 • Medium hills • Early maturing Pant <i>Dhan</i> 6, VL <i>Dhan</i> 81, VL <i>Dhan</i> 85, Vivek <i>Dhan</i> 82, VLK <i>Dhan</i> 39 • Medium maturing VL <i>Dhan</i> 61, VL <i>Dhan</i> 65, Vivek <i>Dhan</i> 62 • Rainfed upland • Direct seeding in spring (March/April) season (<i>Chetaki Dhan</i>) Pant Majhera <i>Dhan</i> 7, VL <i>Dhan</i> 206, VL <i>Dhan</i> 207, VL <i>Dhan</i> 	

		<p>208, VL <i>Dhan</i> 209</p> <ul style="list-style-type: none"> • June seeded (<i>Jethi Dhan</i>) <p>VL <i>Dhan</i> 221, Vivek <i>Dhan</i> 154</p> <ul style="list-style-type: none"> • Plains • Irrigated • Early maturing <p>Govind, Saket 4, Manhar, Narendra 80, Narendra 118, Pant <i>Dhan</i> 12, Pant Sankar <i>Dhan</i> 1</p> <ul style="list-style-type: none"> • Medium maturing varieties <p>Pant <i>Dhan</i> 4, Pant <i>Dhan</i> 10, Saryu 52, Narendra 359, Pant Sankar <i>Dhan</i> 3, Narendra Sankar <i>Dhan</i> 2</p> <ul style="list-style-type: none"> • Late maturing varieties • Some varieties of basmati rice <p>Type 3, Taraori Basmati, Pusa Basmati 1, Kasturi, Pant Sugandha <i>Dhan</i> 15, Pant Sugandha <i>Dhan</i> 17, Basmati 370, Pusa Sugandha 4, Pusa Sugandha 5, Pusa RH 10</p>
15.	Major production constraints:	<p>The stagnation in rice production in the plains is a matter of concern. This alarming situation has been created due to tired soils and excessive use of nitrogenous fertilizers. Besides, regular occurrence of several diseases, and insects pests is also affecting the rice productivity in the plains.</p> <p>In the hills 89 per cent of the rice area is rainfed and situation specific technologies are not available. The adoption of available high yielding varieties and production technologies is poor due to various reasons. The use of chemical fertilizers is very low and the loss of upper layer of the soil on the slopes due to erosion is very common. Thus, whatever organic matter is mixed, it gets lost without making much differences on soil structure and productivity. Thus, soil and water conservation hold the key to rice production in the hills alongwith the standardization of organic farming practices and biodiversity conservation.</p>

16.	Major contribution of the centre in terms of varieties/technologies developed:	<ol style="list-style-type: none"> 1. Sixteen varieties have been released (Table 1 enclosed) 2. Nucleus and Breeder Seed of 25 different varieties was produced as per the requirement (Table 2 enclosed). 3. Two TGMS lines viz; UPRI 95-140 TGH and UPRI 95-167 TGH have been registered with the NBPGR, New Delhi. 4. Rice culture UPR 2870-98-125 registered in NBPGR, New Delhi with INGR 07024 5. Contribution of large number of breeding lines to the National and International Rice Testing Programme for evaluation and utilization. 6. Development of basmati varieties for organic farming is under progress. 7. Hybrid seed production of Pant Sankar Dhan 1 and Pant Sankar Dhan 3 standardized.
17.	Any other relevant information:	<ol style="list-style-type: none"> 1. Helping TDC in seed production of hybrid rice at farmers field. 2. Training to the officers of Department of Agriculture of Uttar Pradesh Seed Corporation and Uttarakhand Seed Corporation and a large number of farmers on hybrid rice seed production technology. 3. Front line demonstration of new varieties and technologies.

Table 1: Rice Varieties Released From Pantnagar

S. N.	Variety	Parentage	Year of release	Duration (days)	Yield (q/ha)	Grain type	Area of adaptation	Reaction to major diseases and pests
1.	IR 24	IR 8/IR 127-2-2	1972	120-125	50-55	LS	Plains of U.P. and Uttarakhand and valleys upto 5000	Susceptible to BLB
2.	Prasad	IR 747B 2-6-3/ IR 579-4B	1978	122-125	48-50	LS	Plains of U.P. and Uttarakhand	Mod. Resistant to BLB
3.	Govind	IR 20/IR 24	1982 1989(CVRC)	95-100 (Direct Seeded) 105-110 (Transp.)	30-35 40-45	LS	U.P., Uttarakhand Pondichery, Gujarat, Maharashtra and M.P.	Resistant to BLB and brown spot
4.	Pant Dhan 4	IR 262/Remadja	1983	128-130	55-60	LS	Plains of U.P. and Uttarakhand	Mod. Resistant to BLB
5.	Manhar	IR 24/Cauvery	1985	115-120	50-55	LS	Plains of U.P. and Uttarakhand	Mod. Resistant to BLB and W.B.P.H.
6.	Pant Dhan 6	IR 8608-298-3-1/ IR 10179-2-3	1986	113-120	40-45	MS	Transplanted conditions of Uttarakhand hills upto 5500	Resistant to leaf blast and brown leaf spot; Mod. Resistant to neck blast and leaf scald.

7.	Pant Dhan 10	IR 28/Mahsuri// IR 32	1992	123-130	58-60	LS	Transplanted condition in plains of Western U.P.& Uttarakhand	Mod. Resistant to BLB, sheath blight and leaf blast; Resistant to WBPH, stem borer, leaf folder, cut worm, gundhi bug and whorl maggot.
8.	Pant Dhan 11	VL 206/Dagi	1992	118-125	42-48	LB	Transplanted conditions of Uttarakhand hills upto 3000	Resistant to leaf blast; Mod. Resistant to BLB and BPH
9.	Pant Dhan 12	Govind/UPRM 201-1-1	1994	115-122	50-55	LS	Transplanted conditions of U.P.& Uttarakhand Plains	MR to BLB and BPH and Resistant to brown leaf spot
10.	Pant Sankar Dhan 1	UPRI 95-17A/ UPRI 92-133R	1997	115-120	65-70	LS	Transplanted conditions of U.P.& Uttarakhand Plains	MR to BLB, Brown spot & Blast and free to false smut & kernel bunt under field conditions.
11.	Pant Dhan 16	BG 380/BG 367-4	2001(CVRC)	105(Direct seeded) 115(Transplanting)	35-45	SB	Rainfed and irrigated ecosystem in Bihar West Bengal and Haryana	Resistant to gall midge biotype- 1, MR to stem borer, brown and plant hopper, leaf blast and brown spot.
12.	Pant Sugandh Dhan 15	Basmati 370/Sudari/Behral/ Muskan 41	2003	135-140	35-40	LS	Transplanted conditions in the plains of Uttarakhand	Tolerant to neck blast, leaf blast, sheath rot, stem borer and leaf folder
13.	Pant Sugandh Dhan 17	Pusa Basmati 1/UPRM 500	2004	135-140	35-43	LS	Traditional Basmati areas of Northern India	Resistant to sheath rot and sheath blight and moderately resistant to leaf and neck blast diseases under controlled conditions, tolerant to stem borer.
14.	Pant Sankar Dhan 3	UPRI 95-17A/UPRI 93-287R	2004	125-130	65-70	LS	Entire plains of Uttarakhand under irrigated and transplanted conditions	Moderately resistant to BLB and free to Blast, brown spot and kernel bunt in field conditions, moderately resistant to stem borer, brown plant hopper, white backed plant hopper and leaf folder.
15.	Pant Dhan 18	IR 25393-57/RD23//IR 27316-96//SPRLR 77205-3- 2/SPRLR 79234-51-2	2007 (CVRC)	130-135	62-65	LS	Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, Bihar, Chhattisgarh, West Bengal	High degree of resistance to leaf and neck blast diseases, MR to brown spot, sheath blight and sheath rot. Tolerant to stem borer leaf folder and brown plant hopper. Tolerant to lodging and shattering; consistent performance under zink phosphorus and potash deficient soils.
16.	Pant Dhan 19	BG 132 / UPRI 95-141	2007 (CVRC)	130-135	65-70	LB	States of Punjab, Haryana, Gujarat and Maharashtra	High degree of resistance B to leaf blast and moderately resistant to Blb and sheath rot diseases, MR to leaf folder, resistant to lodging and shattering, responsive to fertilizers, suitable for timely sowing.

LS-Long Slender, MS- Medium Slender, LB- Long Bold, SB- Short Bold, MR- Moderately Resistant
BLB- Bacterial Leaf Blight, BPH- Brown Plant Hopper, WBPH-White Backed Plant Hopper.

Table 2. Breeder Seed Production

Variety	Seed quantity in quintal				Total
	2001-02	2002-03	2003-04	2004-05	

Pant Dhan 4	105	62	51	28	25.6	271.6
Pant Dhan 6	16	30	10	8	3.7	67.7
Pant Dhan 10	45	-	12	40	58.1	155.1
Pant Dhan 11	14	34	8	8	5.2	69.2
Pant Dhan 12	41	40	16	36	43.6	176.6
Pant Dhan 14	-	-	-	-	-	
Jaya	64	42	45	31	18.7	200.7
Govind	31.85	45	16	70	24.05	186.9
Ratna	-	-	-	-	-	
Sarju 52	71	35	35	25	44.85	210.85
Narendra 359	80	66	75	60	84	365
MTU 7029 (swarna)	55	40	35	50	32.6	212.6
PR 116	-	11	20	10	29	70
Type 3	-	8	14	8	6.85	36.85
Basmati 370	-	40	15	16	2.35	73.35
Pusa Basmati 1	109	47	89.25	120	53.05	418.3
Pusa Sugandh 2	-	6	60	10	5.8	81.8
Pusa Sugandh 3	-	8	70	8	13.85	99.85
Pusa Sugandh 4 (Pusa 1121)	-	-	30	8	4.3	42.3
Pusa 44	65	125	15	80	-	285
Tarori Basmati	-	-	12	5	3.7	20.7
VL 62	6	10	5	5	2.95	28.95
VL 82	-	-	-	10	1.45	11.45
VL 206	-	-	-	10	2.2	12.2
VL 221	6	7.5	3	5	0.9	22.4
Total	708.85	656.5	636.25	651	466.8	3119.4