

# REPORT - 6

24<sup>th</sup> Dec 2018

Basmati Acreage & Yield Estimation in Punjab, Haryana, Delhi, Uttarakhand, Himachal Pradesh, Western Uttar Pradesh and Parts of Jammu & Kashmir

Basmati Export Development Foundation  
APEDA, New Delhi



## **Basmati Survey –Final Report-6 (Season 2018)**

This is the final report (report no. 6) for Basmati crop across 7 states totalling 81 districts. Detailed microscopic level information on Basmati crop has been compiled in this report. The report gives a holistic overview of the entire scenario of Basmati farm level detailing like cost of cultivation/ agro-inputs used/ basmati crop package of practice/ weather details/ crop acreage/ yield/ production level/ mandi arrivals/ price trends etc. All the detailing has been analysed on block-level/ district level/ state level so that microscopic view can be analysed and presented on overall Basmati crop. It might be possible that most of the report parts have already been covered in the previous reports but compiled in this final report so that overall review for the Basmati crop situation during Kharif 2018 can be referred from this report only

**Geotrans Technologies Pvt. Ltd.**

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## Acknowledgement

We are thankful to the Chairman, Agricultural and Processed Food Products Export Development Authority (APEDA) -Shri. Paban Kumar Borthakur and the General Manager Shri. S.S Nayyar, for assigning the work and being a force behind the basmati field study. We are extending our special thanks to Shri. A. K. Gupta for guiding us on this project from last two years and always been a support.

We are grateful to Shri. Vijay Setia, President, All India Rice Exporters' Association (AIREA) and Hon'ble Exporter Members of AIREA for cooperating in the field survey.

We would like to thank Shri. Vinod Kaul, Director, AIREA and his complete team for providing the details on various aspects of farms/ farmers/ acreage and other relevant historical details for completing this survey. We would extend our thanks to Shri. Surender Pal, AGM, APEDA for suggesting regular feedback on our survey reports.

The scientific team of Geotrans would like to thank all the farmers, traders, exporters, agriculture input dealers and others who participated in this survey programme and supported our field team in completing the report.

We look forward to have similar support and guidance in our future endurance too.

TEAM GEOTRANS

Geotrans Technologies Pvt. Ltd.

# Chapter 1

## Executive Summary

### Kharif Rice Acreage

This year the total rice transplanted area in kharif season has decreased by 2.37% on all India basis as compared to last year. If 7 states and 81 districts has been considered then total rice transplantation was lower by 1.28% from last year. However, yield levels reported across major varieties in paddy crop was higher and it compensated the overall loss in the crop and total production is expected to be higher than last year by 1.8%.

States	Paddy acreage (000' ha)					
	2013	2014	2015	2016	2017	2018
Haryana	1199	1138	1174	1303	1287	1270
Punjab	2784	2794	2820	3010	2926	2981
U. P	1576	1573	1316	1343	1336	1336
U. K	269	130	123	129	131	98
J & K	95	142	139	139	139	88
H. P	78	56	56	60	61	32
Delhi	6	1	1	2	2	1
<b>Total</b>	<b>6007</b>	<b>5834</b>	<b>5629</b>	<b>5986</b>	<b>5881</b>	<b>5806</b>

### Basmati Acreage and Production

The percentage area occupied by Basmati has reduced in major states of Haryana and Punjab by 2.87% & 2.67% respectively. In U.P. The area under Basmati has decreased by 1.96%. Overall the Basmati area has decreased by 2.48% in comparison to last year i.e. 2017. Moreover, Basmati yield reduced by 9% which leads to overall production has been reduced by 10%-11%.

The notified Basmati varieties majorly comprises of Basmati-370, Basmati- 386, Type-3 (Dehraduni), Taraori, Ranbir, Pusa-1509, Pusa Basmati-1, CSR-30 and Pusa Basmati-1121.

States	Basmati acreage (000' ha)						Basmati production (000' tons)					
	2013	2014	2015	2016	2017	2018	2013	2014	2015	2016	2017	2018
Haryana	711	833	833	720	652	634	2,899	3,702	3,243	2,797	2,535	2,138
Punjab	590	858	864	549	562	547	2,293	3,499	3,541	2,337	2,142	1,964
U. P	319	354	340	266	256	251	1,270	1,261	1,066	817	763	730
U. K	18.3	20.34	15.8	15.62	14.7881	14.56441	54.16	66.41	45.58	42.25	39	37
J & K	37.28	68.45	62.92	62.25	61.531	62.37204	143.753	240.77	152.15	133.81	132	135
H. P	1	0.45	2.2	7	7.02	7.071	3.4	2.15	7.34	29.7	30	20
Delhi	1	0.7	0.85	1	1	1	4.09	3	3.35	0	0	2
<b>Total</b>	<b>1,677</b>	<b>2,135</b>	<b>2,119</b>	<b>1,686</b>	<b>1,554</b>	<b>1,515</b>	<b>6,667</b>	<b>8,774</b>	<b>8,058</b>	<b>6,154</b>	<b>5,644</b>	<b>5,027</b>

## Long Grain Non-Basmati Acreage

The acreage under long grain non-basmati varieties (Sharbati and Sugandha) in these targeted 81 districts has been remain almost stagnant.

This year Sharbati is the clear preference of the farmers not only over basmati but also over high yielding HYV varieties in Western & Central part of UP, Punjab & Haryana. Primarily, this acreage shift towards Sharbati is not only due to lesser price differential between basmati & non-basmati varieties but also its high yields / lesser susceptibility towards diseases/ high demand / lesser cost of cultivation etc.in past years.

States	Sharbati + Sugandha acreage (000' ha)						Sharbati + Sugandha production (000' tons)					
	2013	2014	2015	2016	2017	2018	2013	2014	2015	2016	2017	2018
<b>Haryana</b>	39.1	38.4	2.7	5.8	6.0	5.8	159.9	160.6	10.0	20.5	21.2	20.1
<b>Punjab</b>	18.8	5.8	5.0	5.8	5.9	5.9	63.6	22.4	20.6	21.8	22.2	22.2
<b>U. P</b>	265.7	293.7	244.0	254.8	265.3	265.2	1119.0	1121.2	472.2	820.2	837.0	836.5
<b>U. K</b>	36.0	12.0	16.1	15.1	15.5	17.4	141.7	46.4	53.1	51.2	51.7	58.8
<b>J &amp; K</b>	1.9	0.2	9.4	10.0	10.1	10.1	6.3	0.9	33.7	35.6	35.9	35.9
<b>Total</b>	<b>383.7</b>	<b>361.1</b>	<b>278.0</b>	<b>291.3</b>	<b>302.8</b>	<b>304.5</b>	<b>1568.4</b>	<b>1389.9</b>	<b>592.1</b>	<b>949.1</b>	<b>968.0</b>	<b>973.5</b>

Sugandha, which is primarily complimenting PB-1121 but its acreage is same over 3-4 years. Sugandha acreage is about 91,691 ha.in current year. The presence of Sharbati and Sugandha is negligible in Himachal Pradesh and Delhi as compared to other states.

## State Wise price range offered on different varieties in Primary markets

Across 7 studied states, basmati crop harvesting is done and mandi arrival in markets have been completed on time i.e. late Nov/ Early Dec. However, secondary market buying is still going on in full pace. Mandi traders are releasing the stocks as per the market and millers demand. This year farmers are quite happy with the current price offered across different mandis while few farmers are expecting that price range could further go up in coming months. This year farmer prices are about 15-20% up as compared to last year in across all studied states. These sentiments are positive signal for next year (2019-20) on overall farmers intention on basmati acreage which has been dipping from last two consecutive years (2017-18 & 2018-19).

**Avg. Mandi Price Range during month of Nov- Dec period (INR/ Qtl)**

**Basmati & Non-Basmati (Long Grain Rice)**

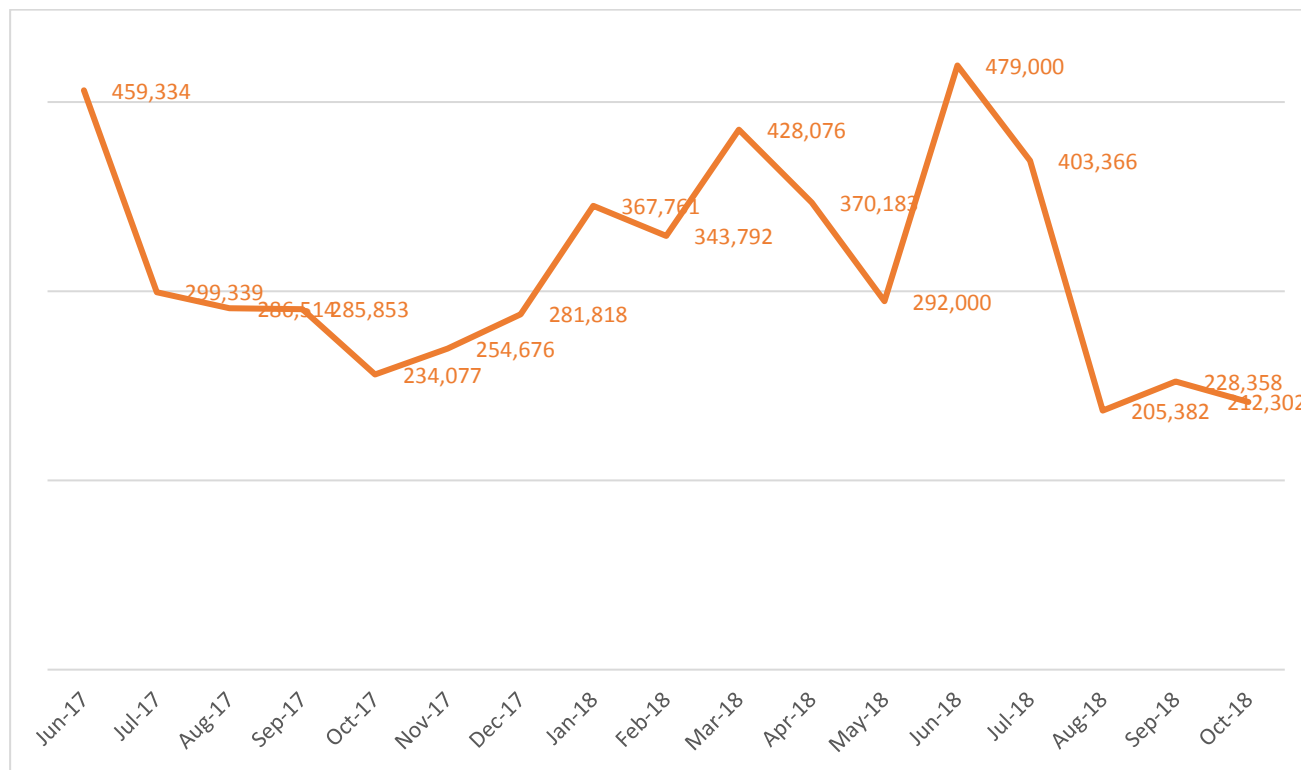
State/ Varieties	Punjab	Haryana	Uttar Pradesh	Uttaranchal	J&K
Pusa Basmati 1121	3200-3500	3500-3600	3200-3300	2900-3100	3200-3300
Pusa Basmati 1509	2650-2800	2800-3000	2800-3000	2850-3000	2800-2900
Pusa Basmati 1	2750-2800	3000-3200	2500-2800	2500-2800	
CSR 30	3800-4000	3800-4000			
Pusa Basmati-1401	2600-2750	2700-2800			
Sharbati	2000-2150	2100-2200	1850-2000	1900-2100	
Sugandha	2300-2400	2300-2400	2100-2300	2100-2300	
Pusa Basmati 1121	3300-3450	3500-3600			
Basmati-370/386/Ranbir					3400-3500

## All India Exports of Basmati Rice from India from (April 2012-Oct 2018)

This year from April to Sep, 2018 export of Basmati is about 7% lesser than same period last year. Despite of the lower Basmati crop size, exporters are anticipating similar volumes of exports for this season too.

Months	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
	<b>Qty in Tons</b>						
<b>April</b>	278797	392799	285108	348565	336769	389406	370,183
<b>May</b>	322913	345188	337150	431895	412769	406253	292,000
<b>June</b>	346910	378786	364636	351894	436780	459334	479,000
<b>July</b>	299985	333990	233774	276219	363185	299339	403,366
<b>August</b>	248884	275844	217355	270100	225776	286514	205,382
<b>Sept</b>	230425	206876	203733	405980	291636	285853	228,358
<b>Oct</b>	193703	180191	295146	304647	237108	234077	212,302
<b>Nov</b>	207964	252292	298274	301920	275149	254676	
<b>Dec</b>	286546	376614	382720	378714	343848	281818	
<b>Jan</b>	318083	345687	350320	347789	328677	367761	
<b>Feb</b>	335395	350092	379888	287501	339748	343792	
<b>March</b>	387474	319005	400195	325944	392731	428076	
<b>Total</b>	3457079	3757364	3748299	4031168	3984176	3802822	

### Basmati exports (figures in MT)



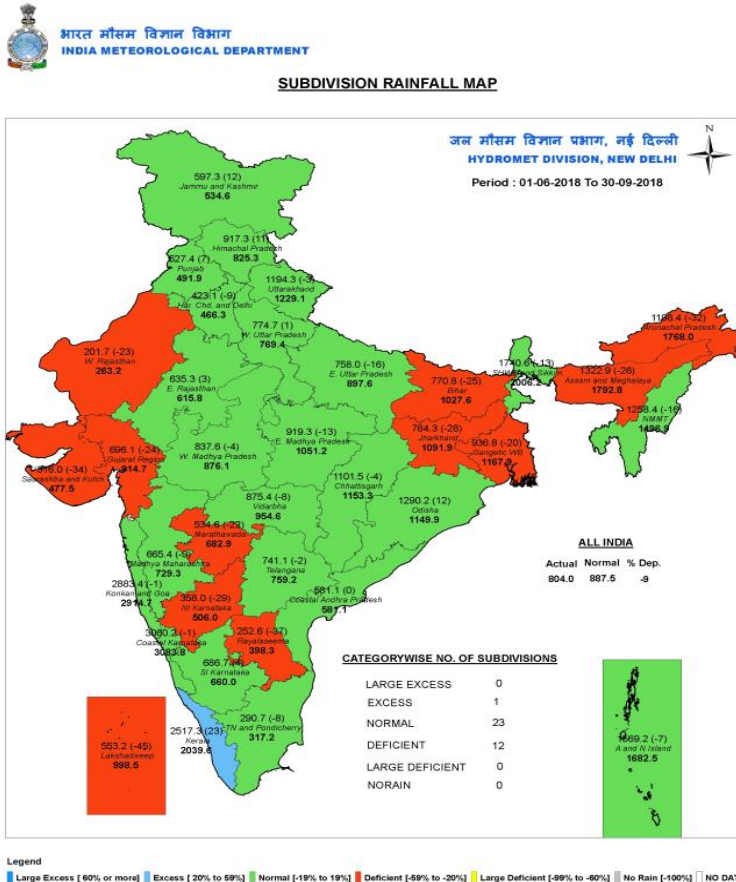
## Rainfall

The Basmati growing belt had witnessed normal rainfall in the months from June, 2018 to Sep, 2018 in states like Punjab, Haryana, Western U.P, J&K, HP and Delhi. Basmati transplanting has been done timely due to good distribution & timely onset of rainfall in the districts. The rainfall during 01-06-2018 to 30-09-2018 in meteorological divisions under study area is given in below table. As Basmati is primarily taken on irrigated land so no major impact has been seen of rainfall in the studied area. However, lesser acreage is only witnessed with reason of crop shift towards competitive crops like sugarcane and non-basmati rice acreage.

**Stats in Major states (Haryana, Punjab, W. UP, U.K, J & K, H.P)**

Period:01-06-2018 To 30-09-2018				
States	ACTUAL	NORMAL	% DEP.	Rainfall Status
	(mm)	(mm)		
Haryana/ Delhi	423	466	-9%	Normal
Punjab	527	492	7%	Normal
W. Uttar Pradesh	775	769	1%	Normal
Uttarakhand	1194	1229	-3%	Normal
J & K	597	535	12%	Normal
HP	917	825	11%	Normal

## Monsoon map depicting % of deviation from normal



# Chapter 2

## State Wise Transplanted Area and Production

### Rice, Basmati & Non-Basmati Long Grain Rice Area during Kharif 2018

In Haryana, the total rice acreage based on field survey has been estimated at 1,270,320 ha in 20 districts. Karnal district has the highest transplanted area under rice (1,59,518 ha), followed by Kaithal district (1,57,531 hac). Overall Basmati area in Haryana has reduced by 2.87% in comparison to last year.

In Punjab, the total rice acreage based on field survey has been estimated at 29,81,000 ha in 22 districts. Sangrur district has the highest transplanted area under rice (2,76,518 ha), followed by Ludhiana district (2,57,531 hac). Overall Basmati area in Punjab has reduced by 2.67% in comparison to last year.

In Uttar Pradesh (studied districts only), timely onset of monsoon, rice transplanting started on time and continued in full sowing during July. A total of 13,36,047 ha. rice acreage based on field survey was transplanted in the 27 districts of the state. Shahjahanpur district has the largest total rice area (1,97,030 ha), followed by Pilibhit (1,52,484 ha) and in districts like Muzaffarnagar, Bagpat, Meerut, many farmers have sown sugarcane replacing Basmati speculating higher sugarcane state advised prices from the state Govt and good sugarcane payment release by sugar mills. Overall Basmati area in Uttar Pradesh has reduced by 1.96% in comparison to last year.

In Uttarakhand, a total of 97,654 ha rice acreage has been transplanted in the 4 districts. Udham Singh Nagar district has the largest area under rice (74,938 ha). This year overall basmati crop has been reduced to 1.51% across state while in certain major districts basmati acreage has been reduced upto the level of 9%.

In Jammu & Kashmir, three districts have been taken up for the study. The total rice area is estimated to be 88,431 ha in these districts. Jammu & Samba have an area of 61,700 ha and Kathua only 26,700 ha. The state has received normal rainfall this year. Area under basmati has increased by 1.37% over last year, as farmer have lesser choice and variety like Ranbir which pays well to farmers in recent past and has constant demand in market

In Himachal Pradesh, a total of 31,895 ha rice acreage based on field survey has been estimated as transplanted in 11 districts. Basmati is grown in Kangra and Mandi districts only. The farmers opted Permal varieties including PR-123 in the increased paddy area. Overall Basmati area in Himachal Pradesh has reported almost similar in comparison to last year.

#### State Wise Transplanted Area, Basmati & Non-Basmati Long Grain Rice Area during Kharif 2018 (in 000hac)

S. No	State	Total Basmati	Pusa-1121	PB-1	Pusa-1509	Pusa-1401	Basmati 370	CSR-30	Type-3 & Others	Non-Notified	
										Sharbati	Sugandha
1	Haryana	633.7	428.5	41.2	33.6	43.1		87.3		5.8	
2	Punjab	546.6	482.2	23.1	41.1					5.9	
3	Uttar Pradesh	250.8	138.0	41.8	58.2				12.7	174.0	91.2
4	Uttarakhand	14.6	3.4	2.3	2.6				6.3	17.0	0.5
5	Jammu & Kashmir	62.4	8.2		0.3		53.9			10.1	
6	Himachal Pradesh	7.1	1.9		5.2						
7	Delhi	1.0									
<b>Total</b>		<b>1515.1</b>	<b>1062.2</b>	<b>108.3</b>	<b>140.8</b>	<b>43.1</b>	<b>53.9</b>	<b>87.3</b>	<b>19.1</b>	<b>212.8</b>	<b>91.7</b>



The various interactions with farmers/ secondary market players and experts field visits suggest that this year about 50.27lakh tons of basmati production is expected against 56.43 lakh tons production on last year. In 2018-19, it has seen that about 2.48% dip in overall acreage of basmati crop while their yield levels are dipped by 9%, which brought the overall basmati production down to almost 10-11% in the current year.

**State Wise initial estimated production of Basmati & Non-Basmati long grain Rice during Kharif 2018(production in 000 tons)**

State	Total Basmati	Pusa-1121	PB-1	Pusa-1509	Pusa-1401	Basmati 370	CSR-30	Type-3 & Others	Non-Notified	
									Sharbati	Sugandha
Haryana	2138	1299	208	133	256		242		20	
Punjab	1964	1656	109	198					22	
Uttar Pradesh	730	371	124	215				20	529	307
Uttarakhand	37	8	7	10				12	57	2
Jammu & Kashmir	135	25		1		91			36	
Himachal Pradesh	20	6		15						
<b>TOTAL</b>	<b>5027</b>	<b>3366</b>	<b>447</b>	<b>572</b>	<b>256</b>	<b>91</b>	<b>242</b>	<b>32</b>	<b>665</b>	<b>309</b>

## PB -1121

In the current season PB 1121 acreage in the 7 states have been reduced by 3.51% over last year. Farmer preferred high yielding Pusa-1509 in place of low yielding PB-1121. Moreover, PB 1509 also has shorter time period and early maturity trait when compared with PB 1121. Basmati crop cutting experiment shows that PB 1121 yields impacted due to late rains/ pest impact at Haryana and Punjab while UP / UK also reported losses in yield. Timely application on remedial action by farmers on brown plant hopper & White bagged plant hopper reduces the further crop losses. This year farmers harvested about 33-35 lakh tons of PB 1121 against the 38-40 lakh tons of harvest happened last year. Yield levels of PB 1121 gone down due to older seed; pest attack post late Sep rainfall; and late harvest than usual time period.

**State wise Acreages (000 ha.) & Production (000 tons) of Pusa-basmati 1121**

S. No	State	2017		2018	
		Pusa 1121 Area	Pusa 1121 Production	Pusa 1121 Area	Pusa 1121 Production
1	Haryana	444	1612	428	1299
2	Punjab	500	1842	482	1656
3	Uttar Pradesh	144	403	138	371
4	Uttarakhand	4	9	3	8
5	J & K	8	25	8	25
6	Himachal Pradesh	2	7	2	6
7	Delhi				
	<b>Total</b>	<b>1101</b>	<b>3898</b>	<b>1062</b>	<b>3366</b>

## PB -1509

The lesser price differential between Pusa 1121 & Pusa 1509 prompted farmer to shift varietal acreage in kharif 2018. Farmer preferred high yielding Pusa-1509 in place of low yielding PB-1121 also on account of its shorter time period and early maturity trait. PB 1509 crop cutting experiment results were shown lower yields in Haryana & Punjab as compared to last year while UP / UK also saw some crop damage on account of late Sep, 2018 rainfall which was more than normal rainfall in most of the districts in two days i.e. 24<sup>th</sup>- 25<sup>th</sup> Sep, 2018). Overall PB 1509 yields impacted negatively due to this rainfall. Basis the current crop conditions this year Pusa-1509 acreage increased by 5.7% clearly indicates that farmer replaced PB 1121 with Pusa - 1509.

This year farmers expected to harvest around 6-7 lakh tons of PB 1509 which could be around 1.53% lower than last year.

### State wise Acreages (000 ha.) & Production (000 tons) of Pusa-basmati 1509

S. No	State	2017		2018	
		Pusa 1509 Area	Pusa 1509 Production	Pusa 1509 Area	Pusa 1509 Production
1	Haryana	29.9	147.9	33.6	133.0
2	Punjab	39.5	192.9	41.1	198.1
3	Uttar Pradesh	56.0	206.3	58.2	214.6
4	Uttarakhand	2.5	10.1	2.6	10.3
5	J & K	0.3	1.1	0.3	1.1
6	Himachal Pradesh	5.1	22.3	5.2	14.7
7	Delhi				
	<b>Total</b>	<b>133.2</b>	<b>580.7</b>	<b>140.8</b>	<b>571.8</b>

## PB -1

Pusa basmati - 1 is continuously reducing in acreage over years and now is only preferred by farmers who take it for their self-consumption, however PB -1 still has good market potential in Europe & Saudi Arabia. Overall PB-1 acreage has been reduced by 1.2% and production came down to 5.63% over last year.

### State wise Acreages (000 ha.) & Production (000 tons) of Pusa-basmati 1

S. No	State	2017		2018	
		PB -1 Area	PB -1 Production	PB -1 Area	PB -1 Production
1	Haryana	41.5	223.0	41.2	207.6
2	Punjab	23.1	110.2	23.1	109.3
3	Uttar Pradesh	42.8	133.0	41.8	123.5
4	Uttarakhand	2.3	7.6	2.3	6.8
	<b>Total</b>	<b>109.7</b>	<b>473.9</b>	<b>108.3</b>	<b>447.2</b>

## Sharbati and Sugandha

The acreage under long grain non-basmati varieties (Sharbati and Sugandha) in the targeted states/ districts has increased by 0.5%.

This year Sharbati is the clear preference by the farmers not only over basmati varieties but also over high yielding HYV varieties in Western & Central part of UP / Punjab & Haryana. Primarily this acreage shift towards Sharbati is not only due to lesser price differential between basmati & non-basmati varieties but also its high yields / lesser susceptibility towards diseases / high demand / lesser cost of cultivation etc

This year farmers harvested around 6.5-7 lakh tons of Sharbati which could be around 1% higher than last year.

### State wise Acreages (000 ha.) & Production (000 tons) of Long Grain Non-Basmati (Sharbati)

S. No	State	2017		2018	
		Sharbati Area		Sharbati Production	
1	Haryana	6	6	21	20
2	Punjab	6	6	22	22
3	Uttar Pradesh	174	174	528	529
4	Uttarakhand	15	17	50	57
5	J & K	10	10	36	36
	<b>Total</b>	<b>211</b>	<b>213</b>	<b>657</b>	<b>665</b>

Sugandha, which is primarily complimenting PB-1121 has been not changed much. Usually Sugandha is not preferred by farmers as independent choice as long grain rice but grown for complimenting the PB 1121 variety

This year farmers harvested around 3.1 lakh tons of Sugandha which could be around similar levels of last year.

### State wise Acreages (000 ha.) & Production (000 tons) of Long Grain Non-Basmati (Sugandha)

S. No	State	Area (in 000 Ha.)		Production (in 000 tons)	
		2017	2018	2017	2018
		Sugandha Area		Sugandha Production	
1	Uttar Pradesh	91.7	91.2	308.8	307.0
2	Uttarakhand	0.5	0.5	1.9	1.9
	<b>Total</b>	<b>92.2</b>	<b>91.7</b>	<b>310.7</b>	<b>308.9</b>

### Variety wise % Area & Production in year 2017 and 2018.

Sl. No.	Variety	% Basmati Area		% Basmati Production	
		2017	2018	2017	2018
1	Pusa Basmati-1121	1100.8	1062.2	3898.1	3365.5
2	Pusa Basmati-1509	133.2	140.8	580.7	571.8
3	CSR-30	93.1	87.3	279.0	242.4
5	Pusa Basmati-1	109.7	108.3	473.9	447.2
6	Pusa Basmati-1401	44.1	43.1	272.5	256.1

## State Wise details

### Haryana

In Haryana, the total rice acreage based on field survey has been estimated at 1,270,320 ha in 20 districts. Karnal district has the highest transplanted area under rice (1,59,518 ha), followed by Kaithal district (1,57,531 hac). Overall Basmati area in Haryana has reduced by 2.87% in comparison to last year.

**Table: 6 Basmati & Rice acreages in Haryana Kharif 2018**

District	Total Rice Acreage		Total Basmati Acreage		% change over LY
	2017	2018	2017	2018	
	Acreage (000 ha.)		Acreage (000 ha.)		
Ambala	80.8	79.7	15.4	13.9	-9.55%
Bhiwani	21.2	20.9	18.7	18.6	-1.00%
Faridabad + Palwal	32.8	32.4	25.5	22.5	-11.90%
Fatehabad	109.0	107.6	2.2	2.1	-4.57%
Gurgaon	4.8	4.7	44.7	41.8	-6.59%
Hisar	62.1	61.3	38.4	38.3	-0.47%
Jajjhar	43.0	42.4	38.6	40.3	4.38%
Jind	128.1	126.4	70.6	75.6	7.12%
Kaithal	159.4	157.2	60.9	58.8	-3.46%
Karnal	161.4	159.2	75	71.1	-5.13%
Kurukshetra	119.4	117.8	29.1	28.5	-2.03%
Mewat	8.0	7.9	6.6	6.5	-1.00%
MahendraGarh	0.0	0.0	0	0	Negligible area
Panchkula	9.4	9.2	0	0	Negligible area
Panipat	71.7	70.7	63.5	59.2	-6.68%
Rewari	1.8	1.7	1.1	1	-1.00%
Rohtak	42.5	41.9	30.8	30.4	-1.49%
Sirsa	71.8	70.8	57	53.1	-6.78%
Sonepat	89.6	88.4	65.2	63.2	-3.06%
Yamunanagar	70.6	69.6	8.7	8.7	0.39%
<b>TOTAL HARYANA</b>	<b>1287.0</b>	<b>1269.7</b>	<b>652.1</b>	<b>633.7</b>	<b>-2.81%</b>

Basmati Rice is cultivated under assured irrigation. Irrigation is mainly through Tube- wells (70%) and Canals (30%). Soils are generally loam to clay loam. Rice-wheat is the major cropping pattern. However, in some areas of high productivity, three crops per year is also being followed i.e. Rice-Potato-Potato; Rice-Toria-Wheat. Short duration varieties like Sharbati are cultivated in association with vegetable pea/potato barseem.

The contract farming in Basmati rice is not popular, (except for some organic rice area of Kaithal district), in any district of the study. Important districts where Basmati varieties grown are-

- Traditional varieties - Jind, Karnal, Kaithal, Kurukshetra, Sonapat and Ambala districts
- Pusa Basmati-1. - Jind, Panipat, Sirsa, Fatehabad, Yamunanagar, Kaithal, Karnal and Sonapat
- Pusa Basmati-1121 - Sonapat, Panipat, Jind, Hisar, Kaithal districts and some areas in Yamunanagar, Rohtak, Jajjhar and Faridabad districts.
- Sharbati - Karnal, Kaithal, Kurukshetra, Jind, Faridabad and Ambala districts.

However, traditional varieties and PB 1121 is losing acreage on account increasing preference towards PB 1509 in the above stated districts

**Variety wise % Area & Production in year 2017 and 2018.**

Sl. No.	Variety	% Basmati Area		% Basmati Production	
		2017	2018	2017	2018
1	Pusa Basmati-1121	443.5	428.49	1611.6	1299.1
2	Pusa Basmati-1509	29.9	33.6	148	133.02
3	CSR-30	93.1	87.31	279	242.37
5	Pusa Basmati-1	41.5	41.19	223	207.56
6	Pusa Basmati-1401	44.1	43.1	272.5	256.1

Farmers generally sow their own seed (30%) or procure from private/ govt. seed agencies (70%). The procurement from Govt. agencies i.e. Agricultural University/State Seed Corporation / NSC is only 15-20%, rest is from outside sources. Farmers use less seed than recommended dose, which is 25 kg seed for sowing nursery for transplanting one ha field. In general, 12-15 kg seed is used by farmers per ha.

This year Nursery sowing of Sharbati and Pusa Basmati-1509 starts by the end of May, and of Pusa Basmati-1, Pusa Basmati-1121, and CSR-30 in the 1st week of June. Sharbati and Pusa Basmati-1509 transplanting starts in June, and that of Pusa Basmati-1, Pusa Basmati-1121 and CSR-30 in July.

Pusa Basmati- 1121 has decreased almost 3.39% over the last year. The area under CSR-30 has also reduced by almost five thousand ha. Under Pusa Basmati- 1509, almost 3,71four to five thousand ha area has increases in comparison to last year.

**District-wise acreage (000hac.) under total rice and Basmati rice in Haryana during Kharif 2018**

District	Pusa Basmati 1121	Pusa 1509	PB -1	Pusa-1401	CSR-30	Sharbati
Ambala	5.0	0.1	0.2	0.0	8.6	0.1
Bhiwani	18.6	0.0	0.0	0.0	0.0	0.1
Faridabad + Palwal	19.4	0.3	2.7	0.0	0.0	0.3
Gurgaon	1.9	0.0	0.2	0.0	0.0	0.3
Fatehabad	18.9	1.7	12.3	7.9	1.0	0.3
Hisar	35.9	0.5	0.8	0.0	1.0	0.1
Jajjhar	39.0	1.1	0.0	0.0	0.3	0.3
Jind	60.0	2.3	7.4	0.0	5.9	0.3

Kaithal	32.6	3.8	0.1	0.0	22.4	0.3
Karnal	34.9	11.2	0.2	0.0	24.7	0.3
Kurukshetra	10.3	3.2	2.3	0.0	12.6	0.1
Mewat	6.5	0.0	0.0	0.0	0.0	0.3
MahendraGarh	0.0	0.0	0.0	0.0	0.0	0.3
Panchkula	0.0	0.0	0.0	0.0	0.0	0.3
Panipat	46.9	3.2	1.8	0.0	7.3	0.3
Rewari	1.0	0.0	0.0	0.0	0.0	0.3
Rohtak	30.3	0.1	0.0	0.0	0.1	0.3
Sirsa	7.6	3.8	6.2	35.2	0.3	1.1
Sonepat	58.9	1.5	0.0	0.0	2.8	0.5
Yamunanagar	0.8	0.8	6.7	0.0	0.4	0.3
<b>TOTAL HARYANA</b>	<b>428.5</b>	<b>33.6</b>	<b>41.2</b>	<b>43.1</b>	<b>87.3</b>	<b>5.8</b>

**% change in acreage(000hac.) of Basmati & Non-Basmati varieties of rice in 2018 over 2017 in Haryana**

S.no	Variety	Acreage 2017	Acreage 2018	% Change
<b>1</b>	<b>Basmati</b>			
	Pusa Basmati-1121	443.5	428.49	-3.39%
	Pusa Basmati-1	41.5	41.19	-0.8%
	Pusa Basmati-1401	44.1	43.12	-2.2%
	Pusa Basmati-1509	29.9	33.6	12.4%
	CSR-30	93.1	87.31	-6.2%
<b>2</b>	<i>Non-Basmati Long Grain</i>			
	Sharbati	6.03	5.82	-3.5%

## Agri- input usage & farm practices

Weeds are controlled by herbicide application and also by manual weeding. Mostly used herbicides are Butachlor 50EC, Anilofos 30EC, and Pretilachlor 50 EC. Farmers use excessive nitrogen and ignore phosphate and potash. They mostly use urea for Nitrogen application. For short-statured Basmati varieties such as Pusa Basmati-1, Pusa 1121 and Sharbati, 185 kg. urea in three equal splits and for HBC 19, 125 kg urea in two split per ha is used. Most of the farmers use 70-75 kg of DAP for Phosphorus per ha as basal dose. Very few farmers use Muriate of Potash for Potassium at the rate of 60 to 70 kg. per ha. Almost all farmers use 30 kg. / ha of Zinc Sulphate to all paddy crops for supply of Zinc. Very few farmers are using FYM and organic fertilizer, despite knowing the benefits of it over crop.

Major insect pests are Rice Stem Borer, Leaf Folder, White Plant Hopper and Brown plant hopper, but this year farmers planted on time hence escapes the attack of insect pest; Thus, requiring very less pesticide. Farmers generally use Buprofezin, Monocrotophos, Chlorpyrifos or granular Cartap Hydrochloride, Fipronil, etc. The most of the farmers apply Carbofuran to give green color to the crop irrespective of presence of Stem rot disease for which to control it is sprayed. Major diseases are Stem rot, Bacterial Leaf Blight (BLB), Sheath Blight, Blast and Foot- Rot. Pusa Basmati-1121 is susceptible to Foot Rot (bakanae) disease. BLB is controlled by the weather conditions (i.e. temperature) in Basmati.

## Harvesting

Harvesting of Pusa Basmati-1509 and Sharbati starts in mid-September and that of Pusa Basmati 1121 in end October to mid-November. The combine harvested Pusa Basmati-1121 crop fetch lesser price in comparison to manually harvested crop. In Haryana, Crop Cutting Experiments has been conducted in 150 plots covering 14 districts. Based on CCE data, the range of productivity of different Basmati varieties has been found to be as follows:

District (tons / ha)	Pusa Basmati-1121	Pusa Basmati- 1	Pusa Basmati-1509	Pusa Basmati-1401
Ambala	2.6	4.3	4.2	
Bhiwani	2.9	0.0	0.0	
Faridabad + Palwal	2.6	4.3	3.7	
Fatehabad	2.8	6.1	4.9	6.7
Hisar	3.1	4.6	4.7	
Jajjhar	2.7	0.0	3.7	
Jind	4.0	4.5	3.8	
Kaithal	3.0	5.3	4.4	
Karnal	3.1	4.0	3.3	
Kurukshetra	3.8	5.0	4.5	
Panipat	2.3	3.8	3.5	
Sirsa	4.3	4.6	5.2	5.8
Sonepat	2.8	0.0	3.3	
Yamunanagar	4.0	4.9	4.8	

In both the cases of Punjab & Haryana, yield levels are lower than last year. Pest attack happened post late Sep, 2018 rainfall.

## Marketing:

Price of paddy varies due to the percentage of moisture in the grain and other quality parameters. During the current year,

State/ Varieties	Haryana( INR / Qtl)
Pusa Basmati 1121	3300-3500
Pusa Basmati 1509	2650-2900
Pusa Basmati 1	2600-2800
CSR 30	3500-3700
Pusa Basmati-1401	2700-2800
Basmati-370/386/Ranbir	2850-3000
Sharbati	1800-2200
Sugandha	2100-2400

Haryana is a high productivity area and farmers are highly adaptive to new technology. Cost of cultivation is very high due to input cost and farmers use all means to get higher productivity.

Basmati Varieties	Cost of Cultivation (INR / ha)	Avg. yield (ton/ ha)	Avg. Prices (INR / ton)	Net Returns (INR/ha)	Profit (INR/ha)
Pusa Basmati 1121	54340	3.03	35000	106111	51771
Pusa Basmati 1509	49400	3.96	30000	118790	69390
Pusa Basmati 1	53105	5.04	27000	136072	82967
Basmati-370/386					
CSR 30	51870	2.78	37000	102710	50840
Punjab Basmati-3	51870				
Pusa Basmati-1401	51870	5.94	28000	166308	114438
Sharbati	37050	3.46	22000	76120	39070
Sugandha	43225				

#### District wise Production Details of Basmati & Long Grain Non- Notified Non-Basmati (Production in 000' tons)

District	Pusa Basmati 1121	Pusa 1509	PB -1	Pusa-1401	CSR-30	Sharbati
Ambala	13.1	0.6	1.1		19.2	0.4
Bhiwani	52.9	0.0	0.0		0.0	0.3
Faridabad + Palwal	50.6	1.2	11.7		0.0	1.1
Gurgaon	5.5	0.0	0.7		0.0	0.8
Fatehabad	53.1	8.2	75.1	53.1	2.9	1.0
Hisar	111.1	2.5	3.8		2.8	0.2
Jajjhar	104.9	3.9	0.0		0.6	0.9
Jind	240.3	8.7	33.7		16.4	0.8
Kaithal	98.1	16.5	0.5		60.1	0.9
Karnal	107.8	37.0	0.8		63.1	0.8
Kurukshetra	39.1	14.6	11.8		38.4	0.4
Mewat	21.6	0.0	0.0		0.0	1.0
MahendraGarh	0.0	0.0	0.0		0.0	0.9
Panchkula	0.0	0.0	0.0		0.0	0.9
Panipat	106.5	11.2	7.0		27.8	1.2
Rewari	3.7	0.0	0.0		0.0	1.0
Rohtak	92.4	0.0	0.0		0.1	0.9
Sirsa	32.6	19.9	28.5	203.0	0.8	4.2
Sonepat	162.6	5.0	0.0		9.0	1.6
Yamunanagar	3.1	3.7	32.7		1.2	0.9
<b>TOTAL HARYANA</b>	<b>1299.1</b>	<b>133.0</b>	<b>207.6</b>	<b>256.1</b>	<b>242.4</b>	<b>20.1</b>



### **Expected changes for the next year :(2019)**

- Current prices and farmer average return will bring back higher sentiments towards overall acreage under Basmati varieties for next season; might be ore shift towards PB 1509 as compare to PB 1121
- For next year farmers preference will be hybrid varieties instead of CSR-30 as it input cost is higher, labour charges is high and yield is also low.
- Farmers tend to take decision on selection of a variety, to be sown in the next coming season, generally on the basis of total return
- Again, Pusa Basmati-1509 being an early maturing and High yielding variety will be farmer preference &bring more acreage in next season

In Punjab, the total rice acreage based on field survey has been estimated at 29,81,000 ha in 22 districts. Sangrur district has the highest transplanted area under rice (2,76,518 ha), followed by Ludhiana district (2,57,531 hac). Overall Basmati area in Punjab has reduced by 2.67% in comparison to last year.

**Table: 7 Basmati& Rice acreages in Punjab Kharif 2018**

S. No.	District	Total rice acreage		Total basmati acreage		
		2017	2018	2017	2018	% Change LY
		Acreage in '000 ha		Acreage in '000 ha		
1	Amritsar	180.3	183.7	104	105.2	1.2%
2	Barnala	108	110	2.3	2.3	0.0%
3	Bhatinda	150.6	153.4	9.6	9.1	-5.0%
4	Faridkot	110.7	112.8	20.5	19.7	-4.0%
5	Fatehgarh Sahib	83.5	85.1	9.5	9.6	1.2%
6	Fazilka	176	179.3	66.8	66.1	-1.0%
7	Firozpur	116.4	118.5	48.3	36.2	-25.0%
8	Gurdaspur	170.8	174	42	41.2	-1.9%
9	Pathankot	26.5	27	2.7	2.7	1.5%
10	Hoshiarpur	63.1	64.3	6.6	5.9	-10.0%
11	Jalandhar	161	164	10.4	10.4	0.0%
12	Kapurthala	117	119.2	7.7	7.7	0.8%
13	Ludhiana	252.2	257	22.7	22.8	0.5%
14	Mansa	92.2	93.9	0.9	0.9	0.0%
15	Moga	176.8	180.1	18.1	17.2	-5.0%
16	Mohali	30.1	30.7	3.9	3.9	-0.5%
17	Muktsar	152.2	155	50.7	50.7	0.0%
18	Nawanshahar	54.1	55.1	4.9	4.9	-1.0%
19	Patiala	223.4	227.6	19.8	19.7	-0.1%
20	Rupnagar	33	33.6	2.8	2.9	1.8%
21	Sangrur	270.9	276	32	31.9	-0.4%
22	Tarantaran	177.3	180.6	75.6	75.6	0.0%
	Total	2925.9	2980.9	561.7	546.6	-2.7%

Rice in Punjab occupies more than 80- 82% of total cropped area during kharif. Basmati Rice is cultivated under assured irrigation and puddled, low land rice ecosystem. Soils are generally loam to clay loam with pH 7.5-8.9. Irrigation is mainly through Tube-wells (78 - 80%) and Canals (20 - 22%).

Rice-wheat is the major cropping pattern. However, in some areas three crops per year is also being followed; i.e. Rice-Potato- Potato; Rice-Potato-Sathi Maize/Summer Moong/Sunflower/Celery; Rice-Toria-Wheat; Rice-Barseem fodder.

Prominent varieties grown indifferent districts:

- Traditional Basmati varieties - Amritsar, Ferozpur, Gurdaspur, Fatehgarh Sahib, Kapurthala, Patiala, Tarantaran and Sangrur.
- Pusa Basmati-1121 - Amritsar, Gurdaspur, Ferozabad, Faridkot, Fatehgarh Sahib, Hoshiarpur, Jalandhar, Kapurthala, Ludhiana, Patiala, Sangrur and TaranTaran.
- Pusa Basmati-1 - Barnala, Ferozpur, Patiala and Sangrur.

However, traditional varieties and PB 1121 is losing acreage on account increasing preference towards PB 1509 in the above stated districts

**Variety wise % Area & Production in year 2017 and 2018.**

Sl. No.	Variety	% Basmati Area		% Basmati Production	
		2017	2018	2017	2018
1	Pusa Basmati-1121	499.5	482.2	1841.8	1655.7
2	Pusa Basmati-1509	39.5	41.1	192.9	198.1
3	Pusa Basmati-1	23.1	23.1	110.2	109.3

\*rest others

Farmers generally sow their own seed (15%) or procure from private seed agencies (75%) and rest from Govt. agencies (Punjab Agricultural University / Punjab State Seed Corporation / NSC) and from other farmers (10%). It has been assessed that all of the farmers use less seed than recommended, which is 20 kg seed for sowing nursery for transplanting one ha field. Almost 80% farmers use 12 - 14 kg and 20% use 8 - 10Kg/ha seed rate.

Only 65% farmers follow normal timings for nursery and transplanting. 20% follow very early and 15% go late. Nursery sowing of Pusa Basmati-1509 starts in the end of month of May, that of Pusa Basmati- 1 and Pusa Basmati-1121 in the first week of June and Basmati-386 and CSR-30 in the second fortnight of June. Pusa Basmati-1509 transplanting starts in the first fortnight of June and that of Pusa Basmati-1, Pusa Basmati-1121 in the first fortnight of July and of Basmati-386 in the second fortnight of July. In the case of late transplanting, yield is reduced and sowing of next crop of wheat is delayed; however, quality of Basmati improves due to low temperature during maturity. Transplanting of traditional Basmati varieties continues up to 1st week of August depending on availability of labor and irrigation water.

**% change in acreage(000hac.) of Basmati & Non-Basmati varieties of rice in 2018 over 2017 in Punjab**

S.no	Variety	Acreage 2017	Acreage 2018	% Change
1	<b>Basmati</b>			
	Pusa Basmati-1121	499.5	482.2	-3.5%
	Pusa Basmati-1	23.05	23.05	0.0%
	Pusa Basmati-1509	39.5	41.1	4.0%
	Basmati-386	0.35	0.35	0.0%
	<b>Non-Basmati Long Grain</b>			
2	Sharbati	5.9	5.9	0.0%

Only 55% farmers go for seed treatment. Remaining 45% farmers don't go for seed treatment. Weeds are entirely (100%) controlled by herbicide application. Mostly used herbicides are -Butachlor 50EC, Anilofos 30EC, and Pretilachlor 50 EC. Farmers make rational use of herbicide for better efficacy for weed control.

Organic manures: Green manures are highly beneficial to rice crop. However, due to shortage of irrigation water, during hot summer costly seed and short time gap between the harvesting of wheat and sowing of rice, 5% farmers have been following the practice of green manuring.

Inorganic fertilizers: Urea is the major source of Nitrogen. For short-statured Basmati varieties such as Pusa Basmati-1, Pusa Basmati-1121 and Sharbati, 200-250 kg / ha urea in three equal splits and for Basmati-386, 80-130 kg urea in two split per ha is used. Most of the farmers use 70 kg of DAP for Phosphorus per ha as basal dose. Very few farmers (3-4%) use potash fertilizers. Muriate of Potash for Potassium at the rate of 60 kg. per ha. is being applied. Majority of farmers use 20-30 kg. / ha of Zinc Sulphate to all paddy crops for supply of Zinc.

Major insect pests are Leaf Folder. Leaf Folder attacked in the month of Sept. Farmers generally used 1-2 spray of Monocrotophos/ Chlorpyrifos or 1-2 applications of granular Cartap Hydrochloride, Fipronil, etc. Due to dry season, the disease incidence was very less this year. For Blast and Sheath Blight, farmers use Tilt 25EC @ 500 ml / ha. in one or two spraying. Seed treatment with Bavistin and Streptocycline is used for control of Foot- Rot. However, this year the use of pesticide was much less.

Harvesting of Sharbati and Pusa Basmati- 1509 starts in September and of other Basmati varieties in late October to mid- November.

In Punjab, Crop Cutting Experiments has been conducted in 60 plots covering 15 districts. Based on CCE data, the range of productivity of different Basmati and non-Basmati varieties has been found to be as follows:

District (tons / ha)	Pusa Basmati-1121	Pusa Basmati- 1	Pusa Basmati-1509	Basmati-386
Amritsar	3.12		4.89	2.47
Barnala	3.90	4.88		
Faridkot	4.06			
Fatehgarh Sahib	3.09	4.73		
Fazilka	3.76			
Gurdaspur	3.18		4.37	
Jalandhar	3.71		0.50	
Kapurthala	3.03			
Ludhiana	3.41	4.50	4.76	
Muktsar	3.46	4.77		
Nawanshahar	3.51		4.68	
Patiala	3.89	4.78	4.88	
Rupnagar	3.39		3.98	
Sangrur	3.56	4.82		
Tarantaran	3.49		5.10	

Most of the Traditional Basmati and Pusa Basmati-1121 farmers (around 30%) do manual harvesting due to higher market price of manually harvested produce. Under shortage of labour or other field problems like lodging etc., 60 -65% farmers go for mechanical harvest and rest follow both types of harvesting practices.

Marketing system is well established in Punjab and harvested produce is taken on the same day or the next day of threshing to the market for the sale. 5-10% farmers store their produce for a month or more, speculating the increase in price. Paddy is cleaned in the market yard and open auctioned on same day through Commission Agent, who charge commission fee from farmers as well as from traders.

**Price offered varies due to the percentage of moisture in the grain and other quality parameters.**

State/ Varieties	Punjab
Pusa Basmati 1121	3200-3500
Pusa Basmati 1509	3000-3200
Pusa Basmati 1	2800-2900
CSR 30	3200-3500
Pusa Basmati-1401	2700-2800
Sharbati	1900-2100
Sugandha	2100-2300

This year farmers are happy with the overall Basmati prices as it is about 10-15% higher than last year. Across Basmati farmers sentiments are positive for the next kharif season.

Basmati Varieties	Cost of Cultivation (INR / ha)	Avg. yield (ton/ ha)	Avg. Prices (INR / ton)	Net Returns (INR/ha)	Profit (INR/ha)
Pusa Basmati 1121	54340	3.4	35000	120190	65850
Pusa Basmati 1509	49400	4.8	33000	159141	109741
Pusa Basmati 1	51870	4.7	29000	137555	85685
CSR 30	53105		34000		
Punjab Basmati-3	54340				
Pusa Basmati-1401	50635				
Sharbati	37050	3.8	21000	78894	41844
Sugandha	41990				

**District wise Production Details of Basmati & Long Grain Non- Notified Non-Basmati (Prdn in 000 tons)**

Sl. No	District	Total Basmati	Pusa-1121	Pusa-1509	Basmati-386	PB-1
1	AMRITSAR	385.8	225.4	159.5	0.9	0.0
2	BARNALA	9.5	7.0	0.0	0.0	2.4
3	BATHINDA	30.5	30.5	0.0	0.0	0.0
4	FARIDKOT	80.0	80.0	0.0	0.0	0.0
5	FATEHGARH SAHIB	32.8	23.7	0.0	0.0	9.2
6	FAZILKA	248.8	248.8	0.0	0.0	0.0
7	FEROZEPUR	130.0	130.0	0.0	0.0	0.0

8	GURDASPUR	131.0	130.6	0.4	0.0	0.0
9	HOSHIARPUR	6.5	6.5	0.0	0.0	0.0
10	JALANDHAR	22.3	22.3	0.0	0.0	0.0
11	KAPURTHALA	36.2	35.8	0.4	0.0	0.0
12	LUDHIANA	23.5	23.5	0.0	0.0	0.0
13	MANSA	84.2	59.3	10.6	0.0	14.3
14	MOGA	3.2	3.2	0.0	0.0	0.0
15	MOHALI	43.0	42.5	0.0	0.0	0.6
16	MUKATSAR	11.7	11.7	0.0	0.0	0.0
17	NAWANSHAHR	186.3	146.6	0.0	0.0	39.7
18	PATHANKOT	17.3	16.2	1.1	0.0	0.0
19	PATIALA	80.4	61.4	6.8	0.0	12.3
20	RUPNAGAR	9.8	9.7	0.1	0.0	0.0
21	SANGRUR	121.5	90.6	0.0	0.0	30.9
22	TARN TARAN	269.7	250.3	19.3	0.0	0.0
	Total	1964.1	1655.7	198.1	0.9	109.3

#### Expected change in the next year:

- Current prices and farmer average return will bring back higher sentiments towards overall acreage under Basmati varieties for next season
- For Basmati 386/370 may have good farmer preference as it doesn't require more fertile land and demand for export market is also good.
- Punjab farmers might stick to PB 1121 despite low yields because private purchase demand is good.
- Demand for PR-121 is also good for next year.
- In Bhatinda district 1121 seems to be negligible in next some years and shifting towards PR-14
- Farmers tend to take decision on selection of a variety, to be sown in the next coming season, generally on the basis of total return
- Again, Pusa Basmati-1509 being an early maturing and High yielding variety will be farmer preference & bring more acreage in next season

In Uttar Pradesh (in the studied districts only), timely onset of monsoon, rice transplanting started on time and continued in full sowing during July. A total of 13,36,047 ha. rice acreage based on field survey was transplanted in the 27 districts of the state. Shahjahanpur district has the largest total rice area (1,97,030 ha), followed by Pilibhit (1,52,484 ha) and in districts like Muzaffarnagar, Bagpat, Meerut, many farmers have sown sugarcane replacing Basmati speculating higher sugarcane state advised prices from the state Govt and good sugarcane payment release by sugar mills. Overall Basmati area in Uttar Pradesh has reduced by 1.96% in comparison to last year.

**Table: 8 Basmati rice acreages in Uttar Pradesh Kharif 2018**

S. No.	District	Total rice acreage		Total basmati acreage		% Change LY
		2017	2018	2017	2018	
		Acreage in '000 ha				
1	Agra	4.0	4.0	0.9	0.9	-0.55%
2	Aligarh	58.3	58.3	26.0	25.3	-2.46%
3	Auraiya	44.9	44.9	1.9	1.9	-1.17%
4	Baghpat	4.9	4.9	3.6	3.6	-1.73%
5	Bareilly	150.1	150.1	3.0	3.0	-2.88%
6	Bijnore	43.7	43.7	6.9	7.1	3.90%
7	Budaun	47.8	47.8	14.1	14.0	-0.89%
8	Bulandshahr	52.0	52.0	29.2	29.7	1.49%
9	Etah+Kasganj	33.2	33.1	8.5	8.3	-1.75%
10	Farukhabad	11.3	11.3	2.7	2.6	-1.98%
11	Firozabad	12.5	12.5	3.8	3.7	-1.81%
12	Etawah	40.6	40.6	8.9	8.7	-2.09%
13	Gautam Buddha Ngr	26.8	26.8	20.2	19.7	-2.62%
14	Ghaziabad+Hapur	27.0	27.0	9.7	9.3	-3.54%
15	Hathras	13.6	13.6	7.1	7.0	-0.87%
16	Mathura	35.7	35.7	27.2	27.0	-0.85%
17	Mainpuri	48.0	48.0	18.1	16.8	-6.89%
18	Meerut	16.3	16.3	7.1	7.2	1.35%
19	Moradabad	66.5	66.5	3.4	3.7	7.23%
20	J.P.Nagar	16.0	16.0	4.1	4.1	0.16%
21	Kannauj	12.3	12.3	2.2	2.2	-0.32%
22	Muzaffarnagar+Shamli	29.8	29.8	10.8	10.6	-1.76%
23	Pilibhit	152.5	152.5	4.4	4.4	-1.09%
24	Rampur	112.4	112.4	2.0	2.1	7.18%
25	Saharanpur	50.5	50.5	22.3	21.5	-3.50%
26	Shahjehanpur	197.1	197.0	4.3	4.1	-5.67%
27	Sambhal	28.5	28.5	3.6	3.6	-0.66%
	Total	1336.2	1336.0	255.8	251.9	-1.53%

The state arehaving loam and clay loamsoils. Rice is mostly cultivated in clay dominated soil. Sodic soils are also used for Basmati cultivation in Ghaziabad, Bulandshahr and some pockets of Meerut and Badaun. Basmati is cultivated under assured irrigated conditions in the state and more than 95% of Basmati growers have independent source of irrigation. Sources of irrigation are private tube-wells, pumping sets and canal.

The major cropping pattern in Uttar Pradesh includes Rice-Wheat. However, other crops like Sugarcane-Vegetables-Fodder-Pulses are also included in the cropping pattern. The short duration varieties (Sharbati) are followed by vegetable pea and short duration spices in the cropping sequence.

Prominent varieties grown in different districts, Basmati rice grown in Uttar Pradesh are Basmati- 370, Type-3 and Basmati CSR-30, Pusa Basmati-1, Pusa Basmati-6, Pusa Basmati- 1509 and Pusa Basmati-1121. Sharbati and Sugandha are other scented varieties. Traditional varieties are localized mostly in Badaun, Sahajahanpur, Saharanpur, Bareilly and Auraiya districts in U.P. Pusa Basmati-6 (1401) has replaced much of the area under PusaBasmati-1. Pusa Basmati 1509 is continuing in potato growing belt.

The productivity has been lesser this year due to the untimely rainfall in the various part of the districts during its maturity time in Sep month.

**District-wise acreage (000ha.) under Basmati rice in U.P during Kharif 2018**

District	Pusa Basmati-1121	Pusa Basmati-1509	Pusa Basmati- 1 & 6	Type-3 & Others	Sharbati	Sugandha
Agra	0.3	0.5	0.1	0.0		2.2
Aligarh	16.3	4.7	4.3	0.0	2.5	9.1
Auraiya	1.0	0.2	0.0	0.7	1.8	0.2
Baghpat	1.8	0.5	1.2	0.0	0.2	0.9
Bareilly	1.2	0.7	0.4	0.7	46.4	0.5
Bijnore	1.4	2.5	3.2	0.0	18.1	1.3
Budaun	1.9	2.1	0.7	9.3	20.8	2.0
Bulandshahr	19.3	4.7	5.7	0.0	4.5	14.8
Etah+Kasganj	4.7	3.1	0.5	0.0	0.9	7.4
Farukhabad	1.7	0.9	0.1	0.0	0.1	2.4
Firozabad	2.2	1.3	0.2	0.0	0.1	5.3
Etawah	6.0	2.6	0.2	0.0	0.1	4.6
Gautam Buddha Nagar	17.1	0.8	1.8	0.0	1.4	0.9
Ghaziabad+Hapur	4.7	3.2	1.4	0.0	3.5	4.9
Hathras	3.8	2.4	0.8	0.0	0.7	5.9
Mathura	22.5	3.4	1.0	0.0	0.3	3.4
Mainpuri	13.9	2.8	0.2	0.0	0.2	6.0
Meerut	2.2	2.6	2.3	0.0	0.6	3.2
Moradabad	1.1	2.3	0.3	0.0	9.3	2.4
J. P. Nagar	1.2	2.0	1.0	0.0	7.2	2.8
Kannauj	0.6	1.4	0.2	0.0	0.1	1.4
Muzaffarnagar+Shamli	4.1	2.5	3.9	0.1	1.3	2.0
Pilibhit	0.8	3.4	0.2	0.0	5.4	0.4
Rampur	0.6	1.4	0.1	0.0	24.0	0.2



Saharanpur	6.5	3.4	11.4	0.2	7.5	2.9
Shahjehanpur	1.3	0.8	0.3	1.7	8.7	0.4
Sambhal	1.4	1.7	0.4	0.0	8.5	4.4
<b>Total</b>	<b>139.5</b>	<b>57.8</b>	<b>41.8</b>	<b>12.7</b>	<b>174.0</b>	<b>91.6</b>

**% change in acreage (000ha.) of Basmati & Non-Basmati varieties of rice in 2018 over 2017 in U.P**

S.no	Variety	Acreage 2017	Acreage 2018	% Change
<b>1</b>	<b>Basmati</b>			
	Pusa Basmati-1121	144.1	138.0	-4.2%
	Pusa Basmati-1 & 6	42.8	41.8	-2.4%
	Pusa Basmati-1509	56.0	58.2	4.0%
	Type 3 & Others	12.8	12.7	-1.0%
	<b>Non-Basmati Long Grain</b>			
<b>2</b>	Sharbati	173.6	174.0	0.2%
	Sugandha	91.7	91.2	-0.6%

About 65% Farmers use Basmati seeds purchased from private seed dealers and reliable progressive farmers. Govt. agencies do not contribute significantly in the distribution of seeds of Basmati. Whereas 30-35% farmers use own seed for cultivation. Seeds of Sharbati are procured from private agencies. The quality seed distributed by various organizations cover 55% of the acreage sown. Remaining 45% is considered to be from farmer's own source.

Seed rate used by most of the farmers is 20-25 kg / ha for all the varieties, as against the recommended dose of 20 Kg/ha depending on seed quality and method of nursery raising. Nursery sowing of Pusa Basmati-1509, Sugandha, Sharbati and some areas Pusa Basmati-1 from 2nd week of May and transplanting starts June onwards, up to first week of August.

The fertilizer dose does not vary much from one district to the other. General application of fertilizer per ha is 30 kg Zinc Sulphate, 140- 160 kg. DAP and 100-200 kg Urea in Basmati, which varies field to field depending on variety. The application of potash is generally ignored. Major insect pests are Rice Stem Borer, Leaf Folder, Brown Plant Hopper and Gundhi bug. In general, the farmers use insecticide whenever the crop suffers severely. But the trend is that many of the farmers use pesticides as recommended by the pesticide dealer.

Major diseases are Bacterial Leaf Blight (BLB), Sheath Blight and Blast. There was no major incidence of disease in Basmati rice this year. Untimely rains in the second fortnight of September and Brown Plant Hopper attack affected rice productivity this year, resulting in >10% lower yields than expected in certain districts

Harvesting of Pusa Basmati-1509, Sugandha and Sharbati starts in September and is completed in the first fortnight of October. In potato growing areas harvesting of Pusa Basmati-1 starts in last week of September. Pusa Basmati-1121 and Traditional Basmati varieties are harvested in late November to 1st week of December. The harvesting is mostly done manually. However, in some Western U.P. districts and Udham Singh Nagar districts, harvesting is also done by Combine Harvester.

In Uttar Pradesh, Crop Cutting Experiments have been conducted over 19 districts. The average productivity of crop has been estimated on the basis of 5 crop cuttings of one sq. m. each in the field with 14% moisture content. Based on the data of crop cutting experiments, the range of productivity of different basmati and non-basmati varieties has been found to be as shown below:

District (tons / ha)	Pusa Basmati-1121	Pusa Basmati- 1	Pusa Basmati-1509	Sharbati	Sugandha
Agra	2.5	3.1	3.8		3.0
Aligarh	2.4	2.7	4.2	3.4	3.1
Auraiya	2.5	3.2	3.2	2.7	3.1
Baghpat	2.8	2.9	3.9	3.6	2.7
Bareilly	2.4	2.9	3.3	2.9	3.3
Bijnore	2.4	2.9	3.5	3.1	3.6
Budaun	2.5	3.0	2.9	3.0	3.4
Bulandshahr	2.7	3.3	4.0	3.4	3.5
Etah+Kasganj	2.4	3.1	3.2	2.9	3.2
Farukhabad	2.6	3.0	3.0	2.7	2.9
Firozabad	2.7	3.1	3.7	2.6	3.2
Etawah	2.9	3.2	3.4	2.9	2.9
Gautam Buddha Nagar	2.8	3.3	4.2	3.4	3.4
Ghaziabad+Hapur	3.3	3.3	4.4	2.9	3.7
Hathras	2.9	3.2	3.4	3.0	3.3
Mathura	3.0	3.3	3.7	3.4	4.0
Mainpuri	2.7	3.5	3.1	3.4	3.3
Meerut	2.4	3.2	3.9	3.3	3.8
Moradabad	2.4	3.3	3.7	3.3	3.3
J. P. Nagar	2.6	3.0	3.6	3.2	3.2
Kannauj	2.5	2.8	3.0	2.8	3.0
Muzaffarnagar+Shamli	1.8	3.0	4.1	2.8	4.0
Pilibhit	3.0	3.0	3.9	3.1	3.8
Rampur	2.9	3.3	3.8	3.0	4.0
Saharanpur	2.3	2.6	3.2	3.0	3.6
Shahjehanpur	2.8	3.1	3.8	3.3	3.3
Sambhal	2.5	3.2	3.8	3.0	3.5

In Uttar Pradesh, rainfall which happened during last week of September has flattened the basmati crop and brought yield losses to the farmers. There were certain fields in the districts like Bijnor, Meerut, Moradabad, Bareilly etc reported normal to low yield losses due to these late rainfalls. The diseases like neck blast was also reported but all under threshold level and has brought much yield losses. All types of Basmati & non-basmati crop got impacted in this late rainfall happened in September month.

Most of the farmers sell their produce after harvest in nearby primary or secondary markets and 'Mandis'. Most of the farmers market this produce after harvest in local markets (mandis) and since the paddy mandis are not available in most of the districts and the farmers carry their produce to other state mandis as well depending on rates. The cost of cultivation of different varieties of Basmati including evolved and non-notified rice, as reported by farmers were as follows:

Basmati Varieties	Cost of Cultivation ( INR / ha)	Avg. yield ( ton/ ha)	Avg. Prices ( INR / ton)	Net Returns (INR/ha)	Profit (INR/ha)
Pusa Basmati 1121	46930	2.69	32000	86080	39150
Pusa Basmati 1509	43225	3.69	29000	107010	63785
Pusa Basmati 1	53105	2.95	28000	82600	29495
Pusa Basmati-1401	53105				
Sharbati	30875	3.04	20000	60800	29925
Sugandha	34580	3.4	22000	74800	40220

Uttar Pradesh (Production 000 tons)

District	Total Basmati	Pusa Basmati-1121	Pusa Basmati-1509	Pusa Basmati-1 & 6	Type-3 & Others	Sharbati	Sugandha
Agra	2.9	0.8	1.8	0.2	0.0		6.4
Aligarh	68.8	35.6	21.7	11.6	0.0	8.4	27.9
Auraiya	4.3	2.5	0.5	0.2	1.1	4.8	0.6
Baghpat	10.8	5.2	2.1	3.5	0.0	0.8	2.3
Bareilly	7.6	2.9	2.1	1.2	1.3	135.2	1.6
Bijnore	21.0	3.5	8.3	9.2	0.0	56.0	4.8
Budaun	27.4	4.8	6.1	2.2	14.3	62.0	6.7
Bulandshahr	90.4	52.5	18.8	19.1	0.0	15.3	52.1
Etah+Kasganj	23.2	11.5	10.2	1.5	0.0	2.5	23.4
Farukhabad	7.2	4.4	2.5	0.2	0.0	0.4	6.8
Firozabad	11.5	5.8	4.9	0.7	0.0	0.3	17.1
Etawah	26.6	17.3	8.8	0.5	0.0	0.2	13.5
Gautam Buddha Nagar	56.9	47.7	3.3	5.9	0.0	4.7	2.9
Ghaziabad+Hapur	35.0	15.9	14.4	4.6	0.0	10.1	18.2
Hathras	21.7	11.1	8.1	2.6	0.0	2.1	19.2
Mathura	82.8	66.6	12.9	3.4	0.0	0.9	13.6
Mainpuri	46.1	37.2	8.2	0.7	0.0	0.6	19.7
Meerut	23.6	4.9	11.2	7.4	0.1	2.0	12.0
Moradabad	11.9	2.6	8.3	1.0	0.0	30.9	7.9
J. P. Nagar	13.1	3.0	7.2	2.9	0.0	23.5	8.9
Kannauj	6.3	1.6	4.3	0.4	0.0	0.4	4.3
Muzaffarnagar+Shamli	29.7	7.5	10.5	11.6	0.2	3.6	8.0
Pilibhit	16.1	2.4	13.2	0.5	0.0	16.6	1.4

<b>Rampur</b>	7.1	1.8	4.9	0.5	0.0	71.7	0.8
<b>Saharanpur</b>	55.8	14.8	10.8	29.9	0.4	22.1	10.4
<b>Shahjehanpur</b>	10.6	3.8	3.2	0.8	2.8	28.8	1.4
<b>Sambhal</b>	11.5	3.6	6.6	1.3	0.0	25.4	15.3
<b>Total</b>	729.9	371.4	214.6	123.5	20.4	529.5	307.0

**Expected change in the next year:**

- Uttar Pradesh farmers will resume to Basmati crop from HYV and Sharbati as this year prices and returns were good in comparison to last year
- Demand of Sharbati is good in U.P, area seems to be increased next year
- Use of hexaconal pesticide seems to be decreased as it affects export of basmati.
- PB 1121 area seems to be decreased as HKR-47 uses as a substitute of PB 1121 in mixing.
- Demand of PR-114 seems to be increased in next couple of years.
- Year old variety / Chandan 21 also seems to be good for next year cropping.
- Demand for Pusa 1 seems to be decreasing for next year as variety has more milling loss.
- Farmers tend to take decision on selection of a variety, to be sown in the next coming season, generally on the basis of total return
- Again, Pusa Basmati-1509 being an early maturing and High yielding variety will be farmer preference & bring more acreage in next season

In Uttarakhand, a total of 97,654 ha rice acreage has been transplanted in the 4 districts. Udham Singh Nagar district has the largest area under rice (74,938 ha). This year overall basmati crop has been reduced to 1.51% across state while in certain major districts basmati acreage has been reduced upto the level of 9%.

**Table: 9 Basmati rice acreages in Uttarakhand Kharif 2018**

S. No.	District	Total Rice Acreage		Total Basmati Acreage		
		2017	2018	2017	2018	% Change
Acreage in '000 ha						
1	Dehradun	7.5	5.6	3	2.8	-5.0%
2	Haridwar	14.3	10.7	6.4	6.4	0.2%
3	Nainital	8.6	6.4	1.5	1.5	-0.9%
4	U S Nagar	100.3	74.9	3.9	3.8	-1.9%
	<b>Total</b>	<b>130.7</b>	<b>97.7</b>	<b>14.8</b>	<b>14.6</b>	<b>-1.5%</b>

**District-wise acreage (000ha.) under Basmati rice in U.K during Kharif 2018**

District	Type-3 & Others	Pusa Basmati- 1121	Pusa Basmati- 1509	Pusa Basmati- 1	Sharbati	Sugandha
Dehradun	2.4	0.2	0.2	0.0	2.6	0.1
Haridwar	2.3	1.5	0.5	2.1	4.2	0.3
Nainital	0.9	0.3	0.3	0.0	1.5	0.0
U S Nagar	0.7	1.4	1.5	0.1	8.6	0.2
<b>Total</b>	<b>6.3</b>	<b>3.4</b>	<b>2.6</b>	<b>2.3</b>	<b>17.0</b>	<b>0.5</b>

About 65% Farmers use Basmati seeds purchased from private seed dealers and reliable progressive farmers. Govt. agencies do not contribute significantly in the distribution of seeds of Basmati. Whereas 30-35% farmers use own seed for cultivation. Seeds of Sharbati are procured from private agencies of farmers own sources. The quality seed distributed by various organizations cover 60% of the acreage sown. Remaining 40% is considered to be from farmer's own source.

Seed rate used by most of the farmers is 15- 25 kg / ha for all the varieties, as against the recommended dose of 20 Kg/ha depending on seed quality and method of nursery raising.

Nursery sowing of Pusa Basmati-1509, Sugandha, Sharbati and some areas Pusa Basmati-1 from 2nd week of May and transplanting starts June onwards, up to first week of August.

The fertilizer dose does not vary much from one district to the other. General application of fertilizer per ha is 25 kg Zinc Sulphate, 125- 150 kg. DAP and 100-200 kg Urea in Basmati, which varies field to field depending on variety. The application of potash is generally ignored.

**% change in acreage (000ha.) of Basmati & Non-Basmati varieties of rice in 2018 over 2017 in U.K**

S.no	Variety	Acreage 2017	Acreage 2018	% Change
<b>1</b>	<b>Basmati</b>			
	Pusa Basmati-1121	3.5	3.4	-4.4%
	Pusa Basmati-1	2.3	2.3	-1.0%
	Pusa Basmati-1509	2.5	2.6	2.0%
	Type 3 & Others	6.4	6.3	-1.5%
	<b>Non-Basmati Long Grain</b>			
<b>2</b>	Sharbati	15.0	17.0	13.3%
	Sugandha	0.5	0.5	0.0%

Major insect pests are Rice Stem Borer, Leaf Folder, Brown Plant Hopper and Gundhi bug. In general the farmers use insecticide whenever the crop suffers severely. But the trend is that many of the farmers use pesticides as recommended by the pesticide dealer.

In Uttarakhand, Crop Cutting Experiments has been conducted in 4 districts. Based on CCE data, the range of productivity of different Basmati and non-Basmati varieties has been found to be as follows:

S. No.	District (tons / ha)	Pusa Basmati-	Pusa Basmati-	Pusa Basmati-	Basmati-370,	Sharbati	Sugandha
		1121	1	1509	Type-3		
1	Dehradun	2.0	0.0	3.4	1.8	3.0	3.9
2	Haridwar	2.8	3.0	4.5	1.9	3.7	4.1
3	Nainital	2.6	0.0	3.0	1.9	3.3	
4	Udham Singh Nagar	2.3	2.8	4.1	1.8	3.3	3.7

Major diseases are Bacterial Leaf Blight (BLB), Sheath Blight and Blast. There was no major incidence of disease in Basmati rice this year. Untimely rains in the second fortnight of September and Brown Plant Hopper attack affected rice productivity this year, resulting in >10% lower yields than expected in certain districts

**Uttarakhand** (Production 000 tons)

District	Total Basmati	Pusa Basmati- 1121	Pusa Basmati- 1509	Pusa Basmati- 1	Type-3 & Others	Sharbati	Sugandha
Dehradun	5.5	0.4	0.7	0.0	4.4	7.8	0.2
Haridwar	17.3	4.1	2.4	6.4	4.4	15.8	1.1
Nainital	3.3	0.7	0.9	0.0	1.7	4.9	0.0
U S Nagar	11.3	3.3	6.3	0.4	1.4	28.5	0.6
<b>Total</b>	<b>37.3</b>	<b>8.5</b>	<b>10.3</b>	<b>6.8</b>	<b>11.8</b>	<b>56.9</b>	<b>1.9</b>

In Jammu & Kashmir, three districts have been taken up for the study. The total rice area is estimated to be 139,609 ha. in these districts. Jammu & Samba have an area of 95,331ha. and Kathua only 41,277 ha. The state has received excess rainfall this year and the transplanting is complete.

**Table: 10 Basmati rice acreages in Jammu & Kashmir Kharif 2018**

S.No	District	Total Rice 2018	Total Basmati Rice 2018	% Share of Basmati Rice
1	Jammu	54.1	49.5	91.6%
2	Kathua	26.7	10.3	38.5%
3	Samba	7.6	2.8	36.7%
	<b>Total</b>	<b>88.4</b>	<b>62.6</b>	<b>70.8%</b>

Basmati is cultivated under assured irrigated condition. Main irrigation source is canal, which supplies water to 94% of Basmati growing areas. Wells irrigate the remaining portion. The major cropping pattern in Jammu & Kashmir is Rice-Wheat/Barley. However, some areas are left fallow after rice due to high moisture.

Farmers use either their own seed or seed purchased from private seed dealers. Govt. seed distribution of Basmati rice is also being facilitated to farmers. Seed rate used by most of the farmers is 12 to 15 kg / ha. Nursery raising starts in mid-June and transplanting is done in mid-July.

Weeds are mostly controlled mechanically by use of Khurpi. However, progressive farmers use 'Butachlor', a popular weedicide. Use of Nitrogen at 40 kg N / ha is generally given. Urea is the main source of Nitrogen.

Major insect pests are Rice Stem Borer, Leaf Folder and Plant Hopper. Farmers use insecticide whenever the crop suffers severely. During the current year, no impact incidence was observed above economic threshold limit and hence, no use of insecticide was required.

Harvesting of Traditional Basmati is generally done manually. Harvesting starts during early November and is completed by mid-November. The cost of cultivation of Basmati-370 as reported by farmers was Rs. 35,000/- to Rs.40,000/- per ha.

**District-wise acreage (000hac.) under Basmati rice in J.K during Kharif 2018**

District	Pusa Basmati- 1121	Pusa Basmati 1509	Basmati 370/ Ranbir	Sharbati
Jammu	1.4	0.0	48.1	9.1
Kathua	6.3	0.2	3.8	0.7
Samba	0.6	0.1	2.2	0.3
<b>Total</b>	<b>8.2</b>	<b>0.3</b>	<b>54.1</b>	<b>10.1</b>

**% change in acreage (000hac.) of Basmati & Non-Basmati varieties of rice in 2018 over 2017 in J.K**

S.no	Variety	Acreage 2017	Acreage 2018	% Change
<b>1</b>	<b>Basmati</b>			
	Pusa Basmati-1121	8.2	8.2	0.3%
	<b>Pusa Basmati 1509</b>	0.3	0.3	0.0%
	<b>Basmati 370/ Ranbir</b>	53.1	53.9	1.5%
<b>2</b>	<b>Non-Basmati Long Grain</b>			
	Sharbati	10	10.1	Negligible

***Jammu & Kashmir*** (Production 000 tons)

District	Pusa Basmati- 1121	Pusa Basmati 1509	Basmati 370/ Ranbir	Sharbati
<b>Jammu</b>	4.3	0.0	79.4	32.3
<b>Kathua</b>	20.6	0.8	7.7	2.6
<b>Samba</b>	0.2	0.3	3.9	1.0
<b>Total</b>	25.1	1.1	91.0	35.9

Expected change in the next year:

Basmati rice acreage in general has stabilized and hence no significant change in the area is expected.



In Himachal Pradesh, A total of 59,120 ha rice acreage based on field survey has been estimated as transplanted in 11 districts. The Basmati varieties are grown mostly in Kangra. The farmers opted Permal varieties including PR-123 in the increased paddy area and the area under Pusa Basmati- 1509.

**Table: 11 Basmati rice acreages in Himachal Pradesh Kharif 2018**

S.No	District	Total Rice 2018	Total Basmati Rice 2018	% Share of Basmati Rice
1	Kangra	31.9	2.991	9.38%
2	Mandi	-	4.08	-
	<b>Total</b>	31.9	<b>7.071</b>	22.17%

Two major districts, Mandi and Kangra have 70-75% of the total area. Basmati and Sharbati are grown in exclusively few blocks of Kangra. Rice is cultivated as a rainfed irrigated crop in general. The majority of farmers (70-75%) use very less input of fertilizer and pesticide etc. and hence the yield is very less, hardly 20-25 qt/ha of rice.

**District-wise acreage (000ha.) under Basmati rice in H.P during Kharif 2018**

District	Pusa Basmati 1121	Pusa Basmati 1509
Kangra*	1.9	1.0
Mandi*		4.1
<b>Total</b>	1.9	5.1

Varieties: Farmer prefers to grow the local traditional varieties due to incidence of pest and diseases. Sharbati is preferred. Diseases like Brown spot, Leaf Blast are the major ones and all basmati varieties are very sensitive to these diseases.

**% change in acreage (000hac.) of Basmati & Non-Basmati varieties of rice in 2018 over 2017 in H.P**

S.no	Variety	Acreage 2017	Acreage 2018	% Change
1	<b>Basmati</b>			
	Pusa Basmati 1121	2	1.92	-4.0%
	Pusa Basmati 1509	5	5.1	2.0%

**Himachal Pradesh** (Production 000 tons)

District	Pusa Basmati 1121	Pusa Basmati 1509
Kangra*	5.78	3.1
Mandi*		11.55
<b>Total</b>	5.78	14.7

There is no established marketing system and mostly products are sold at the farm yard/house. Himachal Pradesh is self- consuming state and very small quantity is being put to market.

#### Expected Change:

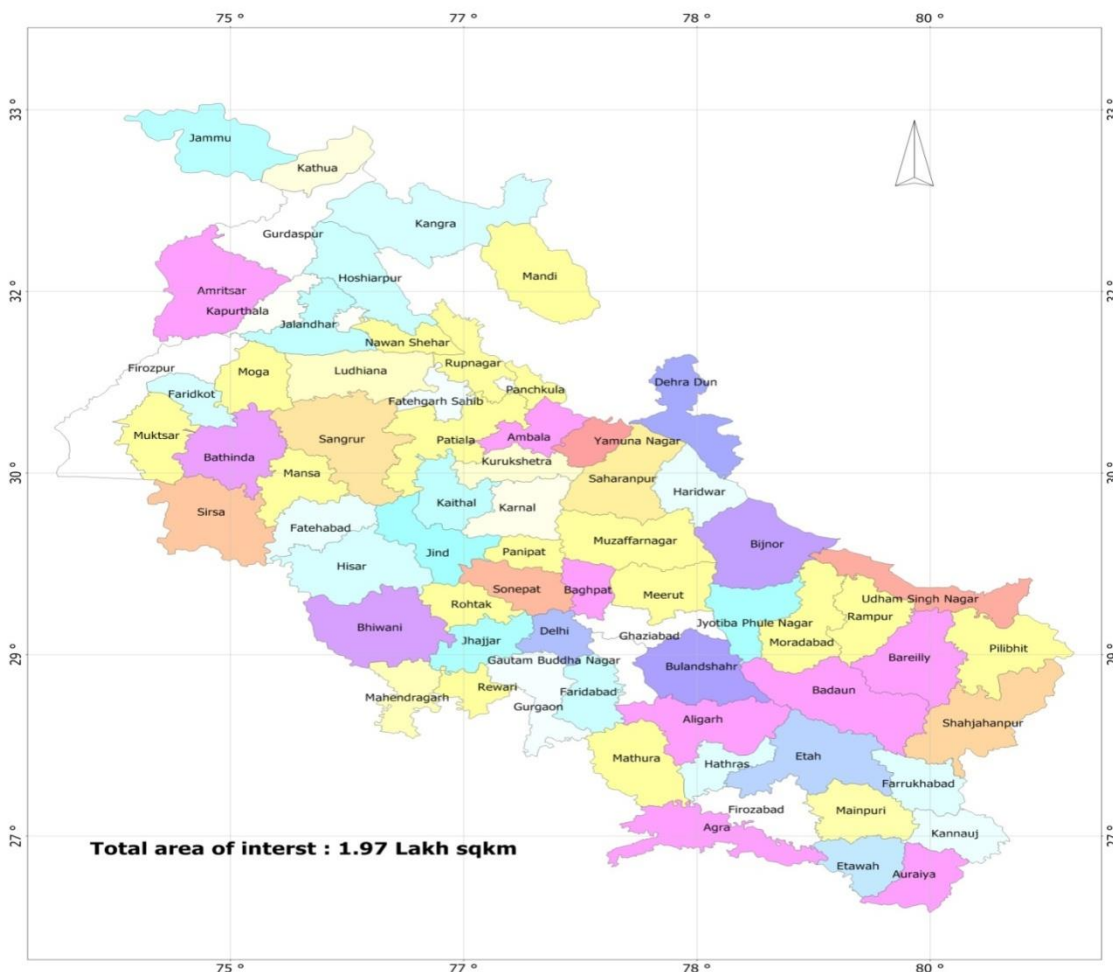
Pusa Basmati-1509 has been introduced only few years back but catching up with farmers in very fast way. But farmers mostly prefer to grow Traditional Basmati varieties of their own choice. There is no significant change likely to occur in the Basmati varieties grown in the state during the next year.

## CONCLUSION

- This year overall Basmati production was lowest in last five years
- Basmati crop is about 10-11% lower than last year on account of lower acreage(2.5%) and yield losses (9%), which makes it as the lowest production level in last five years.
- This year Agro-climatic conditions were favorable for the crop and no major crop losses has been reported till the time late rainfall in Sep month happened and post that rainfall, crop losses reported which nullify the acreage gain for the season and subsequently lower production levels
- Farmers also experienced higher input cost on account of lower labor availability / higher input cost which also neutralizes the prices gain advantage over last year
- Farmers received about 15-20% higher price than last year and they are quite upbeat on the next year Basmati crop
- Farmers traction towards Pusa 1509 will increase while little shift could be seen on traditional varieties

## Project Background

Timely information on the area and likely production of the crop before the harvest helps exporters and other decision makers involved in Basmati trade to take decisions about the quantum and time of export. Realizing this potential, the Basmati Export Development Foundation (BEDF), New Delhi contracted M/s Geotrans Technologies Pvt. Ltd to undertake field survey work for acreage estimation for Basmati crop (for selected and other non-notified varieties), crop health monitoring and yield estimation and production for Basmati rice and non-notified varieties and questionnaire based sample survey of farmers, for 81 districts in the selected seven states i.e. Punjab, Haryana, Uttar Pradesh, Uttarakhand, Himachal Pradesh, and Jammu & Kashmir apart from Delhi. The field survey-based approach has been being applied to collect the information at block level to improve the accuracy further to a desired level. The Basmati varieties for which information is required include Basmati-370, Basmati- 386, Type-3 (Dehraduni), Taraori, Ranbir), Pusa-1509, Pusa Basmati-1, CSR-30 and Pusa Basmati-1121 and non-notified, non- Basmati (Sharbati, and Permal).



## Study Area Details

Work of field survey validation-based acreage estimation for all rice for Basmati crop for selected other non-notified varieties), crop health monitoring and yield estimation and production for Basmati rice and non-notified varieties and questionnaire-based sample survey of farmers, for 81 districts in the selected seven states i.e. Punjab, Haryana, Uttar Pradesh, Uttarakhand, Himachal Pradesh, and Jammu & Kashmir apart from Delhi. The field survey-based approach has been being applied to collect the information at block level to improve the accuracy further to a desired level.

**Table describing the districts of study under each state.**

UTTAR PRADESH	PUNJAB	HARYANA	UTTARAKHAND	J & K	HIMACHAL PRADESH
Agra	Amritsar	Ambala	Dehradun	Jammu	Kangra
Aligarh	Barnala	Bhiwani	Haridwar	Kathua	Mandi
Auraiya	Bhatinda	Faridabad + Palwal	Nainital	Samba	<b>DELHI</b>
Baghpat	Faridkot	Gurgaon	U S Nagar		
Bareilly	Fatehgarh Sahib	Fatehabad			
Bijnore	Fazilka	Hisar			
Budaun	Firozpur	Jajjhar			
Bulandshahr	Gurdaspur	Jind			
Etah+Kasganj	Pathankot	Kaithal			
Farukhabad	Hoshiarpur	Karnal			
Firozabad	Jalandhar	Kurukshetra			
Etawah	Kapurthala	Mewat			
Gautam Buddha Ngr	Ludhiana	MahendraGarh			
Ghaziabad+Hapur	Mansa	Panchkula			
Hathras	Moga	Panipat			
Mathura	Mohali	Rewari			
Mainpuri	Muktsar	Rohtak			
Meerut	Nawanshahar	Sirsa			
Moradabad	Patiala	Sonepat			
J.P.Nagar	Rupnagar	Yamunanagar			
Kannauj	Sangrur				
Muzaffarnagar+Shamli	Tarantaran				
Pilibhit					
Rampur					
Saharanpur					
Shahjahanpur					
Sambhal					

The Basmati varieties for which information is provided include Basmati-370, Basmati-386, Type-3 (Dehraduni), Taraori, Ranbir), Pusa-1509, Pusa Basmati-1, CSR-30 and Pusa Basmati-1121 and non-notified, non-Basmati (Sharbati, and Permal).

## Sample size selection & methodology

### Sample size of farmers interviews

S.no	State	Districts coverage	No. of blocks	No. of farmers targeted	Share of Basmati Acreage
1	Haryana	20	93	1420	40%
2	Punjab	22	143	1040	29%
3	Uttar Pradesh	27	255	814	23%
4	Uttarakhand	4	27	245	7%
5	Jammu & Kashmir	3	13	22	1%
	Total	79	536	3541	100%

- Four different teams each with four experts have been deputed on field for collecting information from farmers
- Teams not only interviewed farmers but also clicked pictures of their fields along with same day newspaper
- Farmers pictures were geo-tagged for reference purpose
- Tele-callers have been deputed to collect the mandi prices & arrival trend so that seasonal trend can be ascertained.
- Technical team is working on thwe introduced Agri-dash-boards for quick understanding and analysis.
- The number of farmer interaction varied from one state to another based on their availability and responses.

The farmers were randomly selected from Basmati growing blocks of prominent districts. The states of Uttarakhand, Jammu & Kashmir and Himachal Pradesh are having very less area, and hence the no. of farmers from these states was small. Moreover, in Jammu, there is no variability in Basmati farming practices and the farmers grow preferably Basmati-370 and the variability in input use is also not significant. But in Kathua, the farmers started growing Pusa Basmati-1121 as they get their produce sold in Punjab markets and get higher returns. And during the last 5 years the acreage under Pusa Basmati-1121 has increased in the area. Since the % Basmati rice area in different districts is variable, the no. of farmers in each district was also variable.

# Annexure 1

## Block-level details

### Block wise and Variety wise acreage under total rice and Basmati + Scented varieties in Haryana (2018)

Sl. No.	District	Block	Total Paddy	Pusa Basmati-1121	CSR3 0	Pusa Basmati-1509	Pusa Basmati - 1	Punjab Basmati-3	Taraori (HBC-19)	Pusa 1401	Sharbati
<b>1</b>	<b>Kaithal</b>		<b>157531</b>	<b>32600</b>	<b>22350</b>	<b>3780</b>	<b>91</b>				<b>276</b>
		Pundri	13390	719	303	575	35				0
		Seevan	40904	5007	644	523	0				0
		Gulha	18116	4616	984	879	0				0
		Rajond	36232	6797	4597	446	0				0
		Kaithal	25205	7762	2032	465	35				0
		Kalayath	23243	7762	2032	465	35				0
<b>2</b>	<b>Karnal</b>		<b>159519</b>	<b>34935</b>	<b>24746</b>	<b>11225</b>	<b>213</b>				<b>255</b>
		Nissang	31105	8136	3324	0	0				0
		Assandh	47601	2843	2031	0	0				0
		Nilokheri	9607	15023	4358	0	0				0
		Gharunda	21637	1433	7978	11225	0				0
		Indri	22805	4536	0	0	0				0
		Karnal	26765	2964	7055	0	0				0
<b>3</b>	<b>Kurukshetra</b>		<b>118068</b>	<b>10333</b>	<b>12587</b>	<b>3205</b>	<b>2346</b>				<b>138</b>
		KRK	61010	2086	5153	82	0				0
		Babain	1566	86	1369	403	0				0
		Ladwa	7181	0	3247	2481	0				0
		Pehowa	33572	6398	2817	0	0				0
		Sahabad	14740	1764	0	239	0				0
<b>4</b>	<b>Rohtak</b>		<b>41973</b>	<b>30275</b>	<b>57</b>	<b>56</b>	<b>0</b>				<b>276</b>
		Rohtak	13927	0	0	0	0				0
		Lakhanmajra	4486	12615	57	0	0				0
		Sampla	4991	0	0	0	0				0
		Meham	12767	3532	0	0	0				0
		Kalanaur	5803	14128	0	0	0				0
<b>5</b>	<b>Faridabad</b>		<b>16216</b>	<b>9715</b>	<b>0</b>	<b>160</b>	<b>1365</b>				<b>138</b>
		Faridabad	3603	0	0	53	0				0
		Ballabhgarh	12612	0	0	106	0				0
<b>6</b>	<b>Palwal</b>		<b>16216</b>	<b>9715</b>	<b>0</b>	<b>160</b>	<b>1365</b>				<b>138</b>
		Palwal	9067	0	0	70	0				0
		Hodal	1718	0	0	9	0				0
		Hathin	2443	0	0	21	0				0
		Hassanpur	2987	0	0	60	0				0
<b>7</b>	<b>Fatehabad</b>	<b>Hassanpur</b>	<b>107794</b>	<b>18930</b>	<b>997.5</b>	<b>1682</b>	<b>12310</b>			<b>7877</b>	<b>276</b>
		Tohana	18290	811	404	123	0				0
		Fatehabad	43267	2794	15	648	0				0
		Bhuna	11190	3065	154	98	0				0
		Ratia	24938	11628	69	773	0				0
		Jakhal	5271	631	347	33	0				0
		Bhattukalan	4838	0	8	7	0				0
<b>8</b>	<b>Sirsa</b>		<b>70973</b>	<b>7567</b>	<b>286</b>	<b>3808</b>	<b>6211</b>			<b>35243</b>	<b>1050</b>
		Ellanbad	13513	0	93	821	0				0
		Sirsa	51301	0	100	1620	0				0
		Rania	2780	7567	90	1064	0				0
		Baragua	0	0	0	0	0				0
		Dabwali	0	0	0	0	0				0
		Odhan	0	0	0	0	0				0
		Natusari	3378	0	4	303	0				0
<b>9</b>	<b>Jhajjar</b>		<b>42462</b>	<b>39000</b>	<b>256.5</b>	<b>1071</b>	<b>0</b>				<b>276</b>
		Jajhhar	10343	22076	145	0	0				0
		Beri	18022	0	0	0	0				0
		Sahlwas	601	0	0	0	0				0
		Matnhill	5507	0	0	0	0				0
		B/Garh	7990	16925	112	0	0				0
<b>10</b>	<b>Bhiwani</b>		<b>20917</b>	<b>18555</b>	<b>0</b>	<b>0</b>	<b>0</b>				<b>84</b>
		Bhiwani	5229	0	0	0	0				0
		Bhiwani Khera	5229	0	0	0	0				0
		Dadri	5229	0	0	0	0				0

		Dadri II	5229	0	0	0	0			0
<b>11</b>	<b>Yamunana</b>		<b>69777</b>	<b>786</b>	<b>389.5</b>	<b>772</b>	<b>6740</b>			<b>276</b>
		Radore	25083	479	224	538	0			0
		Mustfabad	0	192	0	17	0			0
		Jagadhari	0	115	0	214	0			0
		Bilaspur	5473	0	0	0	0			0
		Chachhroli	39221	0	165	3	0			0
		Sadhora	0	0	0	0	0			0
<b>12</b>	<b>Panipat</b>		<b>70841</b>	<b>46892</b>	<b>7308.35</b>	<b>3168</b>	<b>1845</b>			<b>277</b>
		Panipat	10351	10042	1838	0	0			0
		Israna	15394	13011	875	0	0			0
		Matloda	16740	12662	2283	3168	0			0
		Samalkha	13138	8150	2313	0	0			0
		Bapoli	15217	3027	0	0	0			0
<b>13</b>	<b>Jind</b>		<b>126608</b>	<b>59974</b>	<b>5891</b>	<b>2323</b>	<b>7434</b>			<b>276</b>
		Narwana	13628	8944	916	1179	0			0
		Jind	19469	8397	869	118	0			0
		Julana	17386	5664	0	0	0			0
		safidon	29204	0	1263	246	0			0
		Piukhera	19469	18484	0	115	0			0
		Alewa	16744	8546	2843	664	0			0
		Uchana	10708	9938	0	0	0			0
<b>14</b>	<b>Ambala</b>		<b>79861</b>	<b>4960</b>	<b>8599.4</b>	<b>135.3</b>	<b>247</b>			<b>84</b>
		Naraingarh	0	0	0	78	0			0
		Ambala-I	61005	4800	5733	0	0			0
		Ambala-II	7764	53	0	0	0			0
		Baraar	7210	107	0	52	0			0
		Saha	3882	0	2866	0	0			0
		Sahzadpur	0	0	0	5	0			0
<b>15</b>	<b>Sonepat</b>		<b>88551</b>	<b>58875</b>	<b>2807</b>	<b>1517</b>	<b>0</b>			<b>505</b>
		Gohana	11723	9340	252	0	0			0
		Mundana	16086	1837	0	0	0			0
		Kharkhoda	7062	3598	579	0	0			0
		Sonipat	20105	25877	264	0	0			0
		Kathura	6503	0	327	0	0			0
		GANOUR	18749	18221	1385	0	0			0
		Rai	8322	0	0	0	0			0
<b>16</b>	<b>Hisar</b>	<b>Rai</b>	<b>61433</b>	<b>35860</b>	<b>1035</b>	<b>533</b>	<b>829</b>			<b>72.1</b>
		Hisar 1	3118	0	0	0	0			0
		Bas	17931	32600	690	125	0			0
		Hansi	20270	0	0	0	0			0
		Narnaud	15592	0	115	31	0			0
		Agroha	156	0	0	0	0			0
		Uklana	2807	3260	230	251	0			0
		Barwala	1559	0	0	125	0			0
<b>17</b>	<b>Mewat</b>		<b>7871</b>	<b>6534</b>	<b>0</b>	<b>0</b>	<b>0</b>			<b>301.6</b>
		Nuh	2624	0	0	0	0			0
		Punana	2624	0	0	0	0			0
		Nagina	2624	0	0	0	0			0
<b>18</b>	<b>Rewari</b>		<b>1735</b>	<b>1045</b>	<b>0</b>	<b>0</b>	<b>0.00</b>			<b>307.4</b>
<b>19</b>	<b>Gurgaon</b>		<b>4723</b>	<b>1938</b>	<b>0</b>	<b>0</b>	<b>190</b>			<b>265</b>
<b>20</b>	<b>Panchkula</b>		<b>4723</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>			<b>276</b>
	<b>Total</b>		<b>1272321</b>	<b>428490</b>	<b>87311</b>	<b>33594</b>	<b>41186</b>		<b>43119</b>	<b>5819</b>

### Block wise and Variety wise acreage under total rice and Basmati + Scented varieties in Punjab (2018)

Sl. No.	District	Block	Total Basmati	Pusa-1121	Pusa-1509	CSR-30	Basmati-386/ CSR 30	PB-1	Sharbati
1	<b>AMRITSAR</b>		105221	72278	32591		352		367
		Ajnala	25154	10542	1867		106		
		Chogawan	20955	8062	1809		212		
		Harsha Chhina	15760	14263	3130				
		Jandiala Guru	2413	3721	7119				
		Majitha	8532	14389	9125				
		Rayya	2906	3109	1901				
		Tarsikka	4900	989	1183				

		Verka	12103	11129	3154		33	
		Attari	12497	6076	3304			
2	<b>BARNALA</b>		2305.8	<b>1809</b>				<b>497</b>
		Barnala	1032	439				
		Sehna	746	685				
		Mehal Kalan	528	685				
3	<b>BATHINDA</b>		9116.675	<b>9117</b>				
		Rampura Phul	2003	1531				
		Nathana	2326	2906				
		Bathinda	1550	1647				
		Maur	1074	1318				
		Sangat	848	552				
		Talwandi	485	436				
		Sabo	468	242				
		Bhagta Bhai Ka	363	484				
4	<b>FARIDKOT</b>		19699.2	<b>19699</b>				
		Faridkot	9158	9180				
		Kotkapura	10541	10519				
5	<b>FATEHGARH SAHIB</b>		19699.2	<b>7673</b>				<b>1938</b>
		Khera	3752	1381				
		Bassipathana	2181	1535				
		Khamano	3377	460				
		Sirhind	4831	2149				
		Amlah / Gobindgarh	5558	2149				
6	<b>FAZILKA</b>		66145.365	<b>66145</b>				
		Fazilka	34300	28709				
		Abohar	5380	1378				
		Jalalabad	23851	35369				
		KhuyianSarvar	2615	689				
7	<b>FEROZEPUR</b>		36245	<b>36245</b>				
		Ferozepur	4881	4461				
		Ghall Khurd	2779	5390				
		Guru Har Sahai	19081	14870				
		Makhu	2366	2788				
		Mamdot	4703	5948				
		Zira	2437	2788				
8	<b>GURDASPUR</b>		41174	<b>41072</b>	<b>102</b>			<b>3595</b>
		Gurdaspur	3411	5305	0			0
		Dhariwal	3953	4278				0
		Khanuwan	2757	4022				0
		Kalanaur	4289	4107				0
		Dinanagar	3589	3080				0



		Batala	3252	2995				0
		ShHargobindpur	3682	2909				0
		FatehgarhChurian	3215	3679				0
		Quadian	4028	2995				0
		Dera Baba Nanak	4794	3765				0
		Dorangla	4205	3936				0
9	<b>HOSHIARPUR</b>		5921.1	<b>5921</b>				
		Hoshiarpur-I	381	0				
		Hoshiarpur-II	267	0				
		Bhunga	373	0				
		Tanda	1393	1719				
		Dasuya	178	1528				
		Mukerian	1644	1719				
		Hajipur	162	764				
		Talwara	243	0				
		Mahilpur	478	0				
		Garhshankar	802	191				
10	<b>JALANDHAR</b>		10413	<b>9657</b>	<b>756</b>			
		Jalandhar East	854	1518	0			
		Jalandhar West	650	1242	0			
		Adampur	1271	828	0			
		Bhogpur	1252	966	216			
		Philour	1980	828	0			
		Rurka Kalan	505	759	0			
		Noor Mahal	747	1173	0			
		Nakodar	1126	1242	0			
		Shahkot	844	552	0			
		Lohian	1184	552	540			
11	<b>KAPURTHALA</b>		7744	<b>7744</b>				
		Kapurthala	988	1452				
		Sultanpur Lodhi	444	1646				
		Phagwara	1505	2130				
		Dhilwan	2267	1646				
		Nadala	2539	871				
12	<b>LUDHIANA</b>		22780	<b>17392</b>	<b>2217</b>		<b>3172</b>	
		Ludhiana-I	1593	1070	0			
		Ludhiana-II	1770	1070	0			
		Machiwara	1829	1070	599			
		Samrala	1676	535	1561			
		Khanna	1534	2676	0			
		Doraha	2184	803	0			
		Dehlon	3187	803	0			
		Pakhowal	1936	1338	0			

		Sudhar	1617	1338	57			
		Jagraon	2254	1338	0			
		Sidhwan Bet	1818	4013	0			
		Rai Kot	1381	1338	0			
13	<b>MANSA</b>		850	<b>850</b>				
		Mansa	179	163				
		Bhikhi	179	327				
		Bhudhalada	281	294				
		Jhunir	196	33				
		sardulgarh	17	33				
14	<b>MOGA</b>		17159.75	<b>17040</b>				<b>120</b>
		Moga-I	2359	4492				
		Moga-II	938	1549				
		Bagha Purana	2170	6196				
		Nihal Singh wala	7405	2479				
		Kot Ise khan	4288	2324				
15	<b>MOHALI</b>		3850.65	<b>3851</b>				
		Kharar	1612	1091				
		Majri	1791	1284				
		Derabassi	448	1476				
16	<b>MUKATSAR</b>		50723.3	<b>42407</b>				<b>8317</b>
		Muktsar	10289	13304				
		Malout	14315	10394				
		Giddarbaha	10604	10394				
		Lambi	15515	8315				
17	<b>NAWANSHAHR</b>		4861.9375	<b>4630</b>	<b>232</b>			
		Nawanshahr	635	1158	116			
		Banga	1446	1158	116			
		Aur	2016	579	0			
		Balachaur	541	1158	0			
		Saroya	224	579	0			
18	<b>PATHANKOT</b>		2749.635	<b>2750</b>				<b>1938</b>
		Pathankot	941	724				
		N.J. Singh	822	1302				
		Bamial	365	362				
		Dhar	0	0				
		Kalan	320	0				
		Sujanpur	301	362				
19	<b>PATIALA</b>		19734.41	<b>15770</b>	<b>1390</b>			<b>2575</b>
		Patiala	2196	2017	0			
		Nabha	3830	2567	0			
		Saman	1391	1284	0			

		Patran	3024	1009	528					
		Bhunerheri	121	3301	0					
		Sanour	3377	2567	306					
		Rajpura	3035	1284	556					
		Ghanour	2759	1742	0					
20	<b>RUPNAGAR</b>		2886.884	<b>2874</b>	<b>13</b>					
		Rupnagar	477	1495	0					
		Chamkaur Sahib	1295	460	0					
		NurpurBedi	189	230	0					
		Morinda	764	575	13					
		Anandpur Sahib	162	115	0					
21	<b>SANGRUR</b>		31859.16	<b>25440</b>					<b>6419</b>	
		Sangrur	2372	3117						
		Bhawanigarh	2330	2715						
		Ahmedgarh	1027	2715						
		Malerkotla	858	2514						
		Dhuri	1801	2011						
		Sherpur	1991	2715						
		Sunam	1843	3419						
		Lehragaga	9850	3017						
		Andana	9787	3218						
22	<b>TARN TARAN</b>		75579.535	<b>71792</b>	<b>3787</b>					
		TarnTaran	9729	9415	169					
		Chohla Sahib	3780	11769	0					
		NausheraPannuan	13500	10828	1162					
		Gandiwind	8117	7650	1222					
		Khadaur Sahib	4478	5296	1234					
		Patti	12020	8827	0					
		Valtoha	11963	8827	0					
		Bhikhiwind	11992	9180	0					
	<b>Total</b>		546644.87	<b>482156</b>	<b>41087</b>			<b>352</b>	<b>23050</b>	<b>5900</b>

### Block wise and Variety wise acreage under total rice and Basmati + Scented varieties in U.P (2018)

S. No.	District	Block	Total Rice	Pusa-1121	Pusa Basmati-1	Type -3	HBC-19	Basmati-370	Pusa-1509	CSR-30	Sugandha 2,3&5	Sharbati
1	Aligarh		58294	16310.5	4326.1				4683.7		9059.7	2475.2
		Dhanipur	6200	2911	306				287		0	54
		Lodha	3744	1067	204				242			98
		Jawan	7550	2428	377				399			236
		Akrabad	6227	2524	275				365			59
		Atroli	4815	891	182				388			380
		Bijoli	4208	865	115				506			297
		Gangiri	4065	663	102				388			289
		Khair	4836	1098	1365				236			87
		Chandous	3540	865	430				354			179
		Tappal	4576	1401	634				478			134

		Iglas	4283	698	84			579		355
		Gonda	4249	900	253			461		308
<b>2</b>	<b>Hathras</b>		<b>13559.5</b>	<b>3794.4</b>	<b>788.0</b>			<b>2412.8</b>	<b>5898.4</b>	<b>695.5</b>
		Hasain	3948	1033	236			563	0	205
		Sikandraraoo	4504	1520.5	241			469	0	275
		Sapau	2905	681.3	153			646	0	81
		Mursan	549	194.0	59			151	0	43
		Hathras	648	148.9	44			198	0	22
		Sasani	664	166.9	39			182	0	32
		Sadabad	341	49.6	15			203	0	38
<b>3</b>	<b>Etah + Kasganj</b>		<b>33146.4</b>	<b>4707.1</b>	<b>482.7</b>			<b>3135.1</b>	<b>7413.4</b>	<b>882.0</b>
		Sheetalpur	3646	521	55			380	0	90
		Sakeet	6287	880	80			375	0	69
		Nindholikala	2554	413	35			155	0	42
		Marehara	1592	349	10			198	0	42
		Aliganj	554	63	20			128	0	21
		Jaithra	277	36	15			59	0	16
		Jalesar	2407	349	35			294	0	37
		Awagarh	2375	472	40			209	0	37
		Soron	1674	195	15			155	0	42
		Kasganj	1625	245	15			187	0	32
		Tilpura	2663	358	55			230	0	90
		Ganjdudwara	1831	100	20			209	0	69
		Patiyali	2548	413	60			225	0	164
		Amapur	1690	209	20			209	0	100
		Sawat	1424	104	10			123	0	32
<b>4</b>	<b>G.B. Nagar</b>		<b>26826.1</b>	<b>17105.1</b>	<b>1762.2</b>	<b>9.8</b>		<b>782.8</b>	<b>852.6</b>	<b>1375.5</b>
		Bisrakh	3550	2309	342	0		57	0	152
		Dadri	6330	3302	252	0		438	0	719
		Dankour	7297	4858	550	0		98	0	247
		Jebar	9649	6636	619	0		191	0	257
<b>5</b>	<b>Baghpat</b>		<b>4921.0</b>	<b>1828.5</b>	<b>1172.2</b>	<b>29.7</b>		<b>535.5</b>	<b>850.0</b>	<b>235.4</b>
		Chhaproli	702	254	134	0		68	0	23
		Barot	683	271	124	0		89	0	48
		Bagpat	859	340	183	0		84	0	37
		Kirana	967	297	297	0		110	0	42
		Khekhda	972	404	252	0		100	0	48
		Binoli	737	262	183	0		84	0	37
<b>6</b>	<b>Bulandshahr</b>		<b>12522.6</b>	<b>19261.8</b>	<b>5731.2</b>	<b>19.8</b>		<b>4652.1</b>	<b>14776.3</b>	<b>4483.8</b>
		Sikandrabad	1376	3004	863	0		304	0	249
		Gulavati	769	1101	783	0		237	0	409
		Lakhawati	1100	2094	980	0		292	0	228
		Bulandshahr	853	1834	282	0		232	0	260
		Shikarpur	870	1333	188	0		226	0	223
		B.B. Nagar	334	223	76	0		215	0	37
		Sayana	358	265	89	0		232	0	164
		Jahangirabad	628	506	286	0		320	0	101
		Khurja	990	1830	546	0		326	0	334
		Arnia	770	1217	237	0		298	0	653
		Pahasu	1264	1987	470	0		502	0	541
		Unchagaon	323	344	76	0		155	0	101
		Danpur	866	1258	210	0		453	0	409
		Dibai	734	915	143	0		265	0	334
		Anoopshahr	974	952	277	0		447	0	334
		Agota	312	399	224	0		149	0	106
<b>7</b>	<b>Ghaziabad + Hapur</b>		<b>26963.1</b>	<b>4726.8</b>	<b>1400.0</b>			<b>3193.7</b>	<b>4874.5</b>	<b>3478.8</b>
		Rajapura	3324	1211	205			52	0	355
		Loni	1291	393	90			76	0	90
		Muradnagar	2397	774	145			128	0	187
		Bhojpur	2092	275	70			169	0	175

		Hapur	5253	806	95			1309		0	54
		Dholana	4830	749	215			262		0	1715
		Garh	4979	320	535			483		0	788
		Simbhawali	2797	198	45			716		0	114
<b>8</b>	<b>Meerut</b>		<b>16278.2</b>	<b>2208.9</b>	<b>2324.6</b>	<b>29.4</b>		<b>2648.9</b>		<b>3192.6</b>	<b>625.4</b>
		Hastinapur	1937	65	496	0		95		0	270
		Jani	1084	243	190	0		161		0	11
		Mavana	1777	325	164	0		306		0	69
		Paricshitgarh	2161	126	299	0		273		0	122
		Meerut	725	152	76	0		106		0	11
		Kharkhonda	1257	156	44	0		412		0	27
		Machhara	1405	135	83	0		395		0	27
		Rohta	1007	187	190	0		217		0	37
		Sardana	1276	122	272	0		122		0	16
		Rajpura	1122	169	63	0		239		0	11
		Dorala	1225	256	239	0		139		0	11
		Saroorpur	1302	273	207	0		184		0	16
<b>9</b>	<b>Muzzfarnagar + Shamli</b>		<b>29781.8</b>	<b>4058.2</b>	<b>3880.9</b>	<b>106.7</b>		<b>2541.0</b>		<b>1989.7</b>	<b>1263.6</b>
		M. Nagar	2169	189	200	0		300		0	22
		Bagra	1705	171	259	0		184		0	70
		Sardhawan	2401	285	458	0		226		0	76
		Purkaji	3598	408	511	0		132		0	437
		Jansath	1803	189	361	0		179		0	76
		Khatoli	2544	285	288	0		205		0	49
		Borda	1527	215	122	0		132		0	49
		Shahpur	2009	373	201	0		116		0	38
		Udana	1777	250	217	0		153		0	22
		Kandla	1759	189	229	0		210		0	59
		Shamli	1982	400	278	0		184		0	43
		Udon	2044	400	229	0		121		0	65
		Kerana	1830	163	308	0		205		0	167
		Thanabhawan	2634	540	220	0		195		0	92
<b>10</b>	<b>Saharanpur</b>		<b>50498.5</b>	<b>6488.8</b>	<b>11414.3</b>	<b>205.8</b>		<b>3368.1</b>		<b>2878.5</b>	<b>7455.0</b>
		Baliakheri	5283	647	1507	18		264		0	824
		Punwarka	5932	597	1436	15		231		0	835
		Nakur	6016	798	1783	15		341		0	751
		Sarsawan	5277	831	2001	0		264		0	887
		Gangoh	5750	701	1854	23		132		0	541
		Rampur Maniharan	5549	656	965	45		341		0	1061
		Nanota	6171	626	870	45		637		0	688
		Devband	2272	376	162	0		379		0	58
		Nagal	3455	585	542	30		379		0	625
		Sadholikalan	2324	326	128	0		203		0	646
		Muzzafarabad	2469	347	166	15		198		0	541
<b>11</b>	<b>Moradabad</b>		<b>66496.8</b>	<b>1065.3</b>	<b>295.5</b>			<b>2315.0</b>		<b>2375.1</b>	<b>9298.8</b>
		Billari	3436	182	64			491		0	1313
		Moradabad	4760	215	39			420		0	1340
		Chhajlet	3042	171	39			388		0	189
		Mudapanday	7923	72	31			153		0	1351
		Kundarki	8158	215	44			278		0	1567
		Thakurdwar	15299	108	44			235		0	1097
		BhagatpurTandan	12016	61	20			164		0	1097
		Dillari	11863	44	15			186		0	1345
<b>12</b>	<b>Bijnore</b>		<b>43709.8</b>	<b>1444.1</b>	<b>3180.9</b>			<b>2494.8</b>		<b>1340.0</b>	<b>1807.3</b>
		Mohamadpur	3001	67	212			237		0	1194
		DevmalHaldore	3208	98	247			121		0	1515
		Nurpur	3508	103	278			133		0	1729

		Jalilpur	4308	58	288			225		0	1772
		Dhampur	2679	98	187			162		0	1204
		Chuhara	2922	76	200			133		0	1558
		Mehtore	2829	80	197			121		0	1483
		Afjalgarh	4265	139	358			589		0	1761
		Kotwali	6830	255	583			393		0	1697
		Najibabad	7223	308	591			248		0	2719
		Keeratpur	2936	161	40			133		0	1440
<b>1</b>	<b>Rampur</b>		<b>11239</b>	<b>610.4</b>	<b>140.0</b>			<b>1384.1</b>		<b>191.9</b>	<b>2397</b>
<b>3</b>			<b>1.9</b>								<b>1.5</b>
		Subar	20197	86	35			182		0	4332
		Vilaspur	20097	131	40			252		0	3313
		Shayatnagar	17763	50	10			229		0	2326
		Chabraoa	16032	77	15			252		0	3629
		Shahabad	17311	140	15			217		0	4469
		Milakh	20992	127	25			252		0	5902
<b>1</b>	<b>J.P. Nagar</b>		<b>15972.</b>	<b>1157.5</b>	<b>955.5</b>			<b>1998.2</b>		<b>2757.3</b>	<b>7233.</b>
<b>4</b>			<b>3</b>								<b>2</b>
		Amroha	2728	184	108			366		0	626
		Joya	2519	160	64			561		0	1086
		Dhanora	2869	247	310			361		0	1204
		Gajrola	2924	271	138			273		0	1343
		Hasanpur	2314	107	182			221		0	1279
		Gangeshwan i	2619	189	153			216		0	1696
<b>1</b>	<b>Pilibhit</b>		<b>15248</b>	<b>809.1</b>	<b>158.4</b>			<b>3395.6</b>		<b>377.4</b>	<b>5406.</b>
<b>5</b>			<b>3.5</b>								<b>0</b>
		Nurori	15848	113	13			235		0	579
		Lalorikhera	8833	106	33			203		0	782
		Amaria	22346	113	13			395		0	305
		Badkhera	12204	77	40			416		0	541
		Beejalpur	13632	56	33			395		0	833
		Bilsanda	18296	127	13			587		0	941
		Puranpur	61324	218	13			1164		0	1425
<b>1</b>	<b>Agra</b>		<b>3956.1</b>	<b>312.5</b>	<b>72.0</b>			<b>483.0</b>		<b>2181.6</b>	
<b>6</b>											
		Achhnera	2315	121	32			228		0	
		Atmadpur	312	46	18			48		0	
		Fetehpur Sikri	1330	146	23			207		0	
<b>1</b>	<b>Bareilly</b>		<b>15006</b>	<b>1200.8</b>	<b>428.1</b>	<b>666.</b>		<b>658.9</b>		<b>494.9</b>	<b>4637</b>
<b>7</b>			<b>7.8</b>			<b>5</b>					<b>5.0</b>
		Khyora	5186	83	27	0		10		0	1670
		Bitlichainpur	11741	55	27	0		57		0	2083
		Bhojipur	9081	41	9	0		46		0	2920
		Fatehganj	5913	23	14	0		88		0	769
		Meerganj	6501	78	14	0		46		0	2099
		Fareedpur	11326	55	50	0		67		0	2268
		Bhutha	12314	74	41	0		57		0	2454
		Nababganj	13798	69	32	0		62		0	4373
		Bhairpura	9675	161	32	0		57		0	4086
		Bahedi	13956	64	36	0		26		0	4219
		Damekhoda	10634	87	38	0		36		0	3662
		SeeshGarh	9437	106	50	0		26		0	4086
		Alampur	12710	143	23	0		21		0	4468
		Jafrabad	9141	101	14	0		57		0	4192
		Majhagwa	8656	60	23	0		3		0	3026
<b>1</b>	<b>Badaun</b>		<b>47794.</b>	<b>1880.3</b>	<b>738.8</b>	<b>9291</b>		<b>2069.6</b>		<b>1969.5</b>	<b>2075</b>
<b>8</b>			<b>8</b>			<b>.3</b>					<b>3.7</b>
		Badaun	2077	61	39	0		36		0	936
		Asabpur	1868	182	10	0		57		0	1040
		Islamnagar Bisoli	2139	61	39	0		191		0	1302
		Bajirganj	1721	51	25	0		114		0	894
		Dangawan	1603	47	25	0		88		0	1030
		Sahswan	3335	61	25	0		160		0	1615
		Auiyapur	2771	42	25	0		114		0	1553
		Salarpur	3623	145	30	0		263		0	1302

		Jagat	3211	89	34	0		160		0	1610
		Ujhiani	2873	173	54	0		181		0	1344
		Kodarchock	3110	173	44	0		145		0	1302
		Samred	5655	317	108	0		114		0	1730
		Dataganj	5367	145	89	0		263		0	1678
		Mayaoo	5107	173	54	0		88		0	2075
		Usava	3335	163	138	0		98		0	1344
<b>19</b>	<b>Kannauj</b>		<b>12320.7</b>	<b>621.0</b>	<b>157.6</b>			<b>1407.6</b>		<b>1424.1</b>	<b>136.5</b>
		Chhibramau	1933	53	13			87		0	11
		Talgram	1532	86	13			154		0	32
		Sorikh	2143	38	57			220		0	16
		Haseran	2256	186	19			363		0	11
		Jalalabad	336	72	6			56		0	16
		Kakor	1728	62	25			179		0	32
		Umardha	2029	81	13			251		0	11
		Jugrajpur	362	43	13			97		0	11
<b>20</b>	<b>Firozabad</b>		<b>12522.6</b>	<b>2181.0</b>	<b>236.4</b>			<b>1305.6</b>		<b>5322.7</b>	<b>124.2</b>
		Tundla	220	42	10			87		0	10
		Narkhi	358	42	10			67		0	10
		Shikohobad	2045	333	15			189		0	21
		Madanpur	2045	295	15			113		0	26
		Araon	1348	174	50			292		0	16
		Jasrana	4719	1055	70			364		0	26
		Hathbant	150	19	5			46		0	16
		Eka	1637	220	60			148		0	0
<b>21</b>	<b>Mathura</b>		<b>35713.1</b>	<b>22479.4</b>	<b>1044.2</b>			<b>3433.5</b>		<b>3423.9</b>	<b>275.6</b>
		Mathura	3988	2998	39			331		0	43
		Govardhan	4471	3123	212			226		0	12
		Nand Gaon	4979	3123	94			473		0	24
		Chhata	7870	4669	305			788		0	12
		Chomuha	3824	2675	123			457		0	6
		Farah	1470	462	25			299		0	49
		Baldev	981	345	34			142		0	49
		Raya	1049	273	39			205		0	18
		Manth	3007	1573	84			368		0	12
		Navjhil	4075	3240	89			147		0	49
<b>22</b>	<b>Mainpuri</b>		<b>48036.8</b>	<b>13855.1</b>	<b>201.0</b>			<b>2760.6</b>		<b>5970.0</b>	<b>179.4</b>
		Kurawali	2373	615	5			228		0	6
		Ghiroor	6898	1676	15			409		0	24
		Sultanganj	3344	1251	40			449		0	36
		Bebar	3036	683	20			286		0	42
		Kishani	8178	1302	40			525		0	24
		Mainpuri	11167	3571	60			403		0	12
		Jageer	11349	4169	10			286		0	24
		KarahalBarna hal	1691	589	10			175		0	12
<b>23</b>	<b>Etawah</b>		<b>40597.6</b>	<b>5986.6</b>	<b>157.6</b>			<b>2565.4</b>		<b>4585.4</b>	<b>62.1</b>
		Saifai	7537	846	14			248		0	11
		Jaswantnagar	5024	534	41			592		0	23
		Badpura	1037	279	34			142		0	6
		Basrehar	6712	960	27			349		0	0
		Bhartana	9033	903	14			354		0	0
		Takha	6950	1466	14			546		0	11
		Maheva	4189	984	7			319		0	6
		Chakarnagar	116	14	7			15		0	6
<b>24</b>	<b>Farrukhabad</b>		<b>11320.8</b>	<b>1686.6</b>	<b>59.1</b>			<b>854.9</b>		<b>2385.3</b>	<b>136.5</b>
		Badpura	1270	14	0			36		0	16
		Rajepur	1329	37	11			57		0	37
		Kamalganj	1806	32	5			130		0	42
		Mohamdabad	1591	28	21			224		0	5

		Nababganj	1875	23	16				203		0	32
		Shamshabad	1656	14	0				193		0	0
		Kayamganj	1795	1540	5				11		0	5
<b>25</b>	<b>Auriya</b>		<b>44940.1</b>	<b>1009.4</b>	<b>49.3</b>	<b>656.7</b>			<b>164.8</b>		<b>190.0</b>	<b>1754.4</b>
		Auriya	6004	135	0	0			16		0	169
		Ajitmal	6102	77	11	0			21		0	394
		Bhagwant nagar	7665	162	22	0			53		0	527
		Bidhuna	7883	189	0	0			27		0	302
		Achalda	4868	77	5	0			43		0	102
		Sahar	5698	284	0	0			5		0	92
		Aerwakatra	6720	86	11	0			0		0	169
<b>26</b>	<b>Shahjahanpur</b>		<b>197029.7</b>	<b>1318.3</b>	<b>266.0</b>	<b>1680.2</b>			<b>814.8</b>		<b>426.3</b>	<b>8688.4</b>
		Banda	20386	81	25	0			56		0	766
		Khutar	10908	77	0	0			51		0	665
		Puvahya	17149	150	25	0			41		0	874
		Sindholi	18464	81	39	0			36		0	874
		Khudaganj	14823	65	10	0			56		0	670
		Jaitipur	10645	69	0	0			41		0	852
		Tilhar	9897	28	10	0			36		0	306
		Nigohi	11495	122	10	0			36		0	381
		Kanth	11242	45	5	0			41		0	32
		Dadrol	11141	53	20	0			56		0	520
		Bhaavalkhed a	10458	53	15	0			87		0	488
		Clan	13306	199	20	0			108		0	734
		Mirjapur	9897	114	30	0			46		0	456
		Jalalabad	11687	93	30	0			97		0	766
		Madanpur	15531	89	30	0			26		0	306
<b>27</b>	<b>Sambhal</b>		<b>28454.9</b>	<b>1415.0</b>	<b>394.0</b>	<b>19.6</b>			<b>1736.8</b>		<b>4393.5</b>	<b>8533.0</b>
		Junamai	2184	167	34	0			88		0	832
		Gunnour	1959	113	20	0			88		0	784
		Rajpura	1788	149	30	0			99		0	726
		Baniakhera	5212	167	64	0			244		0	1606
		Bahjoi	3107	140	39	0			328		0	620
		Sambhal	5614	257	79	0			328		0	1654
		Pawansa	2316	104	30	0			192		0	769
		Asmoli	6274	320	99	0			369		0	1542
	<b>Total</b>		1336047	139522	41817	12716			57797		91595	173971

### Block wise and Variety wise acreage under total rice and Basmati + Scented varieties in U.K (2018)

Sl. No	District	Block	Total Rice	Basmati varieties						Long Grain Non Basmati		
				Pusa Basmati - 1121	Pusa Basmati - 1	Type -3	HBC -19	CSR -30	Basmati - 370	Pusa Basmati - 1509	Sugan dha 2,3&5	Sharbati
<b>1</b>	<b>Haridwar</b>		<b>10716</b>	<b>1476</b>	<b>2113</b>	<b>2317</b>				<b>528</b>	<b>263</b>	<b>4236</b>
		Bahadurabad	2727	436	447	708				106	0	1028
		Narsan	1398	183	310	0				86	0	337
		Rurki	1861	267	280	322				67	0	691
		Lakshar	1321	276	349	772				67	0	490
		Khanpur	1706	112	349	129				106	0	479



		Bhagwanpur	1703	201	378	386			96	0	1211
<b>2</b>	<b>Dehradun</b>		<b>585</b>	<b>210</b>		<b>2413</b>			<b>208</b>	<b>61</b>	<b>2598</b>
		Doibala	1342	81		542			87	0	767
		Raypur	388	0		185			52	0	69
		Sahjpur	1321	56		487			35	0	757
		Vikash Nagar	1370	64		747			35	0	746
		Kalasi	621	9		226			0	0	164
		Chackrata	542	0		226			0	0	95
<b>3</b>	<b>U S Nagar</b>		<b>74939</b>	<b>1422</b>	<b>137</b>	<b>749</b>			<b>1538</b>	<b>17</b>	<b>8647</b>
		Khatima Sitar	11616	88	0	0			112	0	679
		Ganj	12976	55	0	115			123	0	539
		Bajpur	11212	183	0	0			332	0	1188
		Rudrapur	10743	374	30	138			255	0	1545
		Jaspur	9627	164	54	288			271	0	1757
		Kashipur	8459	252	0	115			317	0	1272
		Gadarpur	10305	307	54	92			129	0	1666
<b>4</b>	<b>Nainital</b>		<b>6415</b>	<b>276</b>		<b>869</b>			<b>309</b>		<b>1471</b>
	BetalghatBhimtalDhari Ramgarh OkhalgolaHaldwani Ram Nagar Kotabag	Betalghat	268	0		0			0		121
		Bhimtal	229	0		0			0		72
		Dhari	30	0		0			0		0
		Ramgarh	149	0		0			0		0
		Okhalgola	268	0		0			0		0
		Haldwani	2038	106		446			137		579
		Ram Nagar	1842	142		423			172		699
		Kotabag	1592	28		0			0		0
	<b>Total</b>		<b>97655</b>	<b>3384</b>	<b>2250</b>	<b>6348</b>			<b>2583</b>	<b>493</b>	<b>16952</b>

**Block wise and Variety wise acreage under total rice and Basmati + Scented varieties in J.K (2018)**

Sl. No.	District	Block	Total Rice	Pusa Basmati-1121	Basmati-370	Sharbati
<b>1</b>	<b>Jammu</b>		<b>88432</b>	<b>1385</b>		<b>9129</b>
		Akhnoor	0	0		3060
		Balwal	0	0		153
		Bishnah	0	1340		1938
		Marh	0	0		255
		R.S. Pura	0	45		2856
		Satwari	0	0		867
<b>2</b>	<b>Kathua</b>		<b>26720</b>	<b>6272</b>		<b>745</b>

		Kathua	0	2744		230
		Hiranagar	0	2303		357
		Barnoti	0	1225		158
<b>3</b>	<b>Samba</b>		<b>88432</b>	<b>582</b>		<b>275</b>
		Samba &Rehian	0	340		68
		Vijaypur& Ramgarh	0	243		104
		Purumandal&Yakh	0	0		0
		Gaghwal	0	0		104
	<b>Total</b>		<b>88432</b>	<b>8239</b>		<b>10149</b>

# Annexure 2

## State-Mandi wise arrival/prices

### HARYANA

#### Basmati & Non-Basmati Long Grain Rice Area during Kharif 2018

#### Basmati 1121 Arrival & Prices Haryana ( INR / Qtl )

APMC	21-Dec	15-Dec	1-Dec	28-Nov	21-Nov	14-Nov	7-Nov	30-Oct	22-Oct
	<i>Price (per Quintal)</i>								
AMBALA	3501	3500	3390	3490	3532	3395	3625	3395	
ASANDH		3625	3625	3800	3800	3625	3645		3200
BARWALA HISAR		3650	3645	3500	3631	3645		3551	3491
CHEEKA		3670	3670	3600	3600	3670		3575	
DHAND	3350	3634	3711	3655	3711	3775		3680	
ELLANABAD						3200			
FATEHABAD	3600	3665	3665	3665	3665	3335		3270	
GANAUR						3621			
GHARAUNDA	3501	3561	3561	3561	3561	3641			3500
GOHANA	3592	3662	3662	3662	3662	3621	3611	3491	3552
HANSI	3461	3611	3611	3611	3611	3625			3151
HODAL						3200			
INDRI						3600		3600	3500
ISMAILABAD						3800		3571	3625
JAKHAL		3510	3510	3510	3510	3786		3368	
JIND	3570	3610	3610	3610	3610	3654			3591
JULANA	4000	3850	3850	3850	3850	3801	3801	3601	3575
KAITHAL		3470	3570			3625		3560	3570
KALAYAT	3491	3591	3591	3690	3690	3675		3661	3591
KARNAL	3470					3600		3525	3570
LADWA		3735	3735	3735	3735	3600			3600
MADLAUDA		3700	3700	3700	3700	3672	3651	3611	3580
NARNAUND	3451	3550	3550	3550	3550	3671	3611	3585	3546
NARWANA		3601	3601	3601	3601	3680	3650	3621	3511
NISSING						3700	3650	3500	
PANIPAT	4000	3750	3805	3805	3805	3651		3673	3621
PEHOWA		3750	3750	3750	3750	3650		3641	
PILLUKHERA						3696			
PUNDRI						3900	3921	3500	3541
REWARI	3440	3471	3471	3471	3471	3600		3561	3516

ROHTAK		3600	3600	3600	3600	3581		3521	3532
SAFIDON	3611					3681		3571	3430
SAMALKHA	3451	3600	3650	3650	3650	3631		3551	3471
SHAHBAD						3500			3631
SIRSA	3350					3200			
SONEPAT		3750	3800	3800	3800	3751		3571	3701
TARAORI	3391	3665	3665	3665	3665	3581		3601	3200
THANESAR		3700	3725	3780	3825	3725			
TOHANA	3580					3631			
UCHANA	3788					3681			

### Basmati & Non-Basmati Long Grain Rice Area during Kharif 2018

#### Basmati 1509 Arrival & Prices( INR / Qtl )

APMC	21-Dec	15-Dec	1-Dec	28-Nov	21-Nov	14-Nov	7-Nov	30-Oct	22-Oct
	<i>Price (per Quintal)</i>								
AMBALA	3000	3200	3550	3570	3532	3395	3625	3395	
ASANDH		3400	3800	3776	3800	3625	3645		3200
BARWALA HISAR	3100	3350	3658	3638	3631	3645		3551	3491
CHEEKA		3500	3600	3593	3600	3670		3575	
DHAND		3680	3711	3757	3711	3775		3680	
ELLANABAD	3050					3200			
FATEHABAD		3500	3665	3673	3665	3335		3270	
GANAUR						3621			
GHARAUNDA		3200	3561	3776	3561	3641			3500
GOHANA	3151	3270	3662	3646	3662	3621	3611	3491	3552
HANSI	3150	3450	3611	3596	3611	3625			3151
HODAL	3251					3200			
INDRI						3600		3600	3500
ISMAILABAD						3800		3571	3625
JAKHAL		3200	3510	3499	3510	3786		3368	
JIND	2950	3400	3610	3590	3610	3654			3591
JULANA	2971	3350	3850	3835	3850	3801	3801	3601	3575
KAITHAL						3625		3560	3570
KALAYAT		3470	3690	3689	3690	3675		3661	3591
KARNAL						3600		3525	3570
LADWA		3200	3735	3765	3735	3600			3600
MADLAUDA		3270	3700	3752	3700	3672	3651	3611	3580
NARNAUND		3550	3550	3578	3550	3671	3611	3585	3546
NARWANA		3601	3601	3605	3601	3680	3650	3621	3511
NISSING						3700	3650	3500	
PANIPAT	3521	3805	3805	3805	3805	3651		3673	3621

PEHOWA		3750	3750	3750	3750	3650		3641	
PILLUKHERA						3696			
PUNDRI						3900	3921	3500	3541
REWARI		3270	3471		3471	3600		3561	3516
ROHTAK		3600	3600		3600	3581		3521	3532
SAFIDON						3681		3571	3430
SAMALKHA		3650	3650	3650	3650	3631		3551	3471
SHAHBAD						3500			3631
SIRSA	3112					3200			
SONEPAT	3051	3550	3800	3800	3800	3751		3571	3701
TARAORI	3065	3478	3665	3665	3665	3581		3601	3200
THANESAR		3390	3825	3825	3825	3725			
TOHANA	3281					3631			
UCHANA	3581					3681			

## UTTAR PRADESH

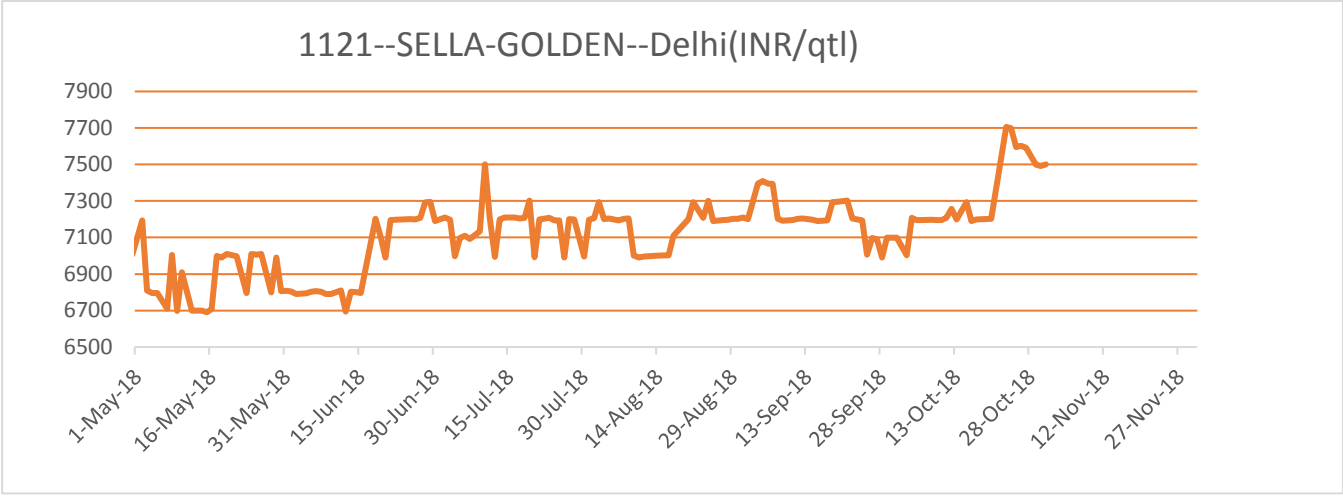
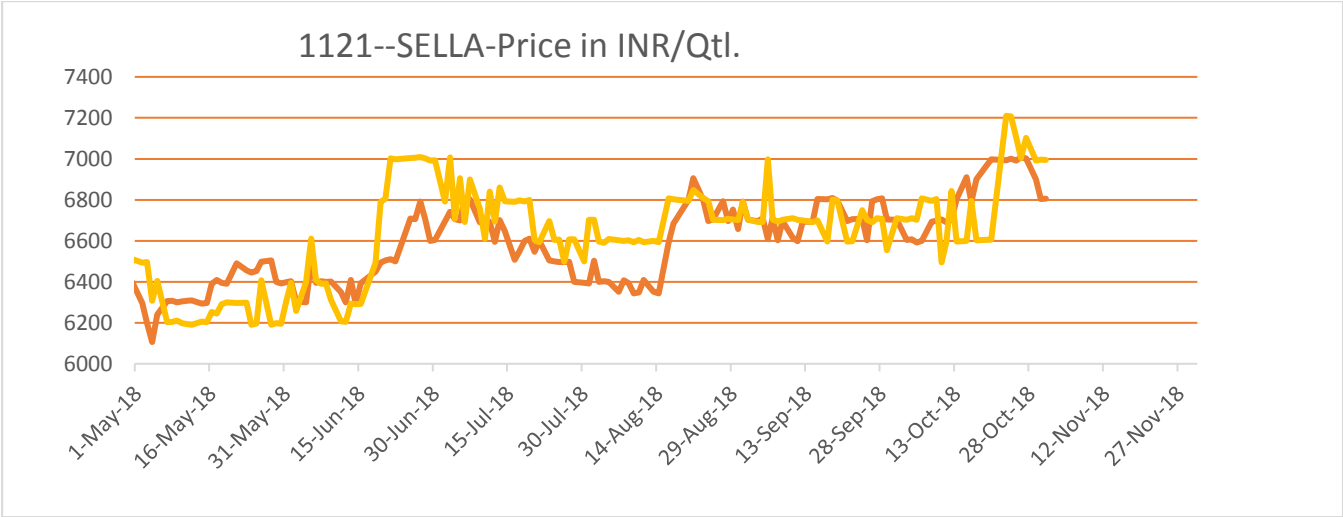
### Basmati & Non-Basmati Long Grain Rice Area during Kharif 2018 Basmati 1509 Arrival & Prices U.P

APMC	21-Dec	15-Dec	1-Dec	28-Nov	14-Nov	7-Nov	30-Oct	22-Oct
						<i>Price (per Quintal)</i>		
ALIGARH	3300	3000	2850	2850	2911		2770	2800
DADRI UP	3350						2580	2701
KHAIR		2781	3000	3000	3080		2825	2980
MAINPURI		2410	2450	2450	2475		2476	2385
MILAK							2071	2280
SAHARANPUR		2500	2790	2790	2815		2600	2785

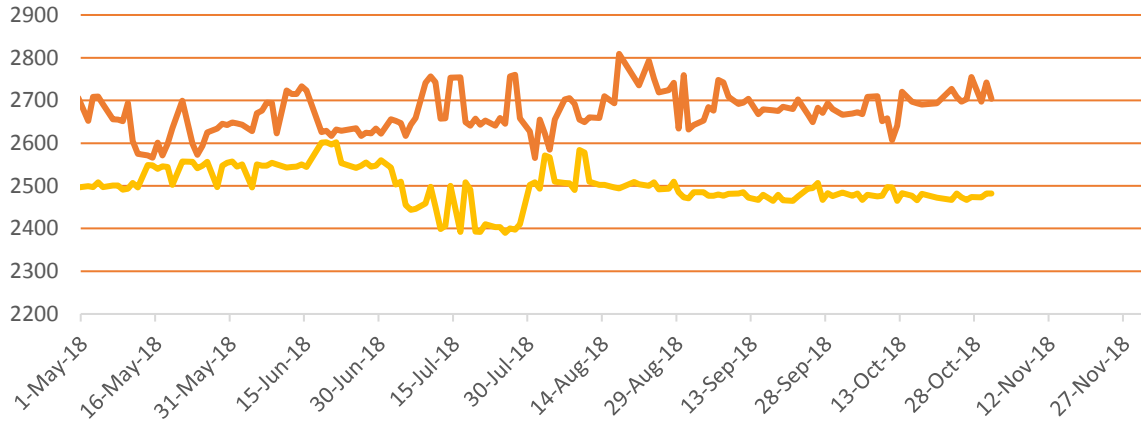
*Mandi Arrival are only indicative figures which is indicated on e-NAM platform. The price levels are also indicative and not on the overall arrivals which have been traded in the market place. Any discrepancy, if any in the prices/ mandi arrivals can be re-validated further if required*

# Annexure 3

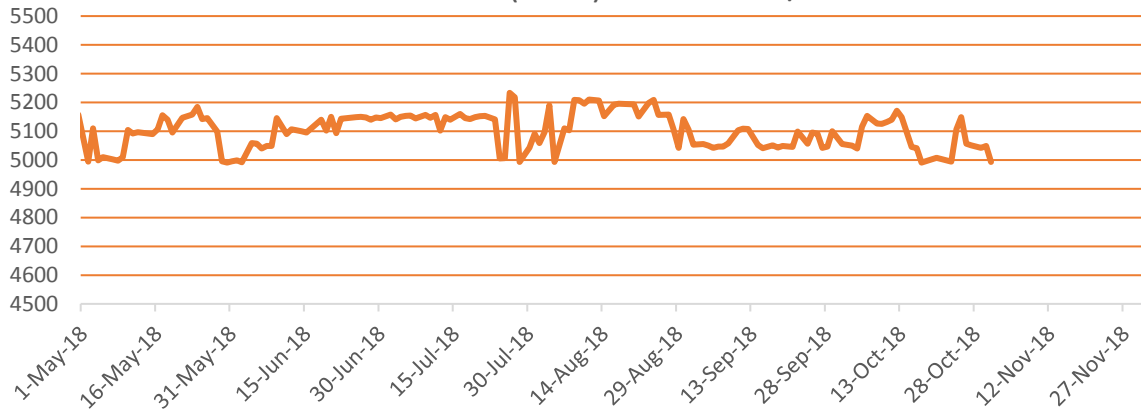
## India Rice price trends in major markets



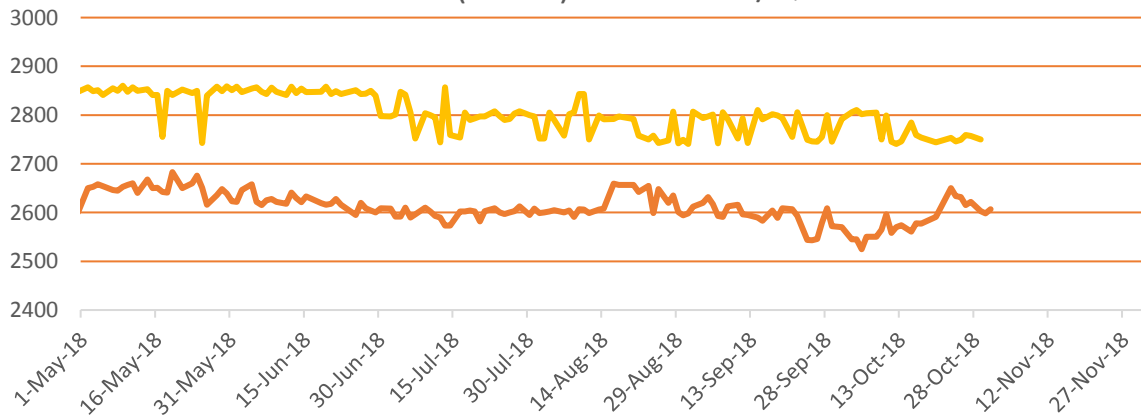
Permal Raw (Mill)-Price in INR/Qtl.



SHARBATI STEAM(MILL)-Price in INR/Qtl.



Permal Wand (White)-Price in INR/Qtl.



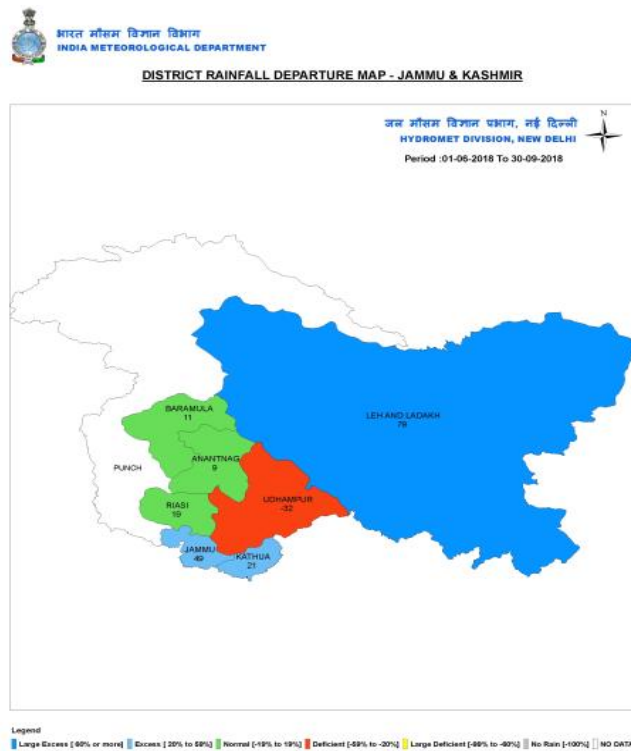
# Annexure 4

## Monsoon Report

### Rainfall

The Basmati growing belt has witnessed normal to deficient rainfall. Punjab, Uttarakhand, U.P., H.P. & Delhi has witnessed normal rainfall while Haryana has witnessed deficient rainfall this year. The rainfall during 1-06-2018 to 12-09-2018 in meteorological divisions under study area is given in below table and the rainfall in prominent districts (Haryana, Punjab, U.P., U.K, J & K, H.P., Delhi)

#### JAMMU & KASHMIR



Jammu & Kashmir districts with significant excess and deficit rains (Source: IMD)

Period: 01-06-2018 To 30-09-2018

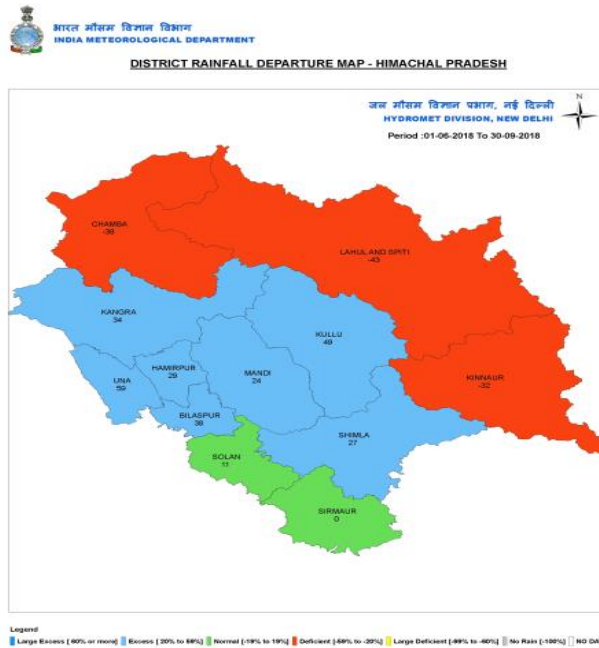
SN	State	Actual (mm)	Normal(mm)	Departure(%)	Category
	JAMMU & KASHMIR	597.3	534.6	12%	N



1	<b>BANDIPORE</b>	<b>471.0</b>	<b>168.6</b>	<b>179%</b>	<b>LE</b>
2	DODA	528.6	441.4	20%	E
3	GANDERWAL	236.8	184.3	28%	E
4	JAMMU	1286.2	860.5	49%	E
5	<b>KARGIL</b>	<b>18.9</b>	<b>49.7</b>	<b>-62%</b>	<b>LD</b>
6	KATHUA	1184.0	982.0	21%	E
7	KULGAM	420.0	268.9	56%	E
8	<b>LEH &amp; LADAKH</b>	<b>70.8</b>	<b>39.6</b>	<b>79%</b>	<b>LE</b>
9	PULWAMA	221.4	151.4	46%	E
10	RAJOURI	493.4	649.5	-24%	D
11	RAMBAN	491.2	400.6	23%	E
12	SRINAGAR	251.5	184.3	36%	E
13	UDHAMPUR	938.4	1377.2	-32%	D

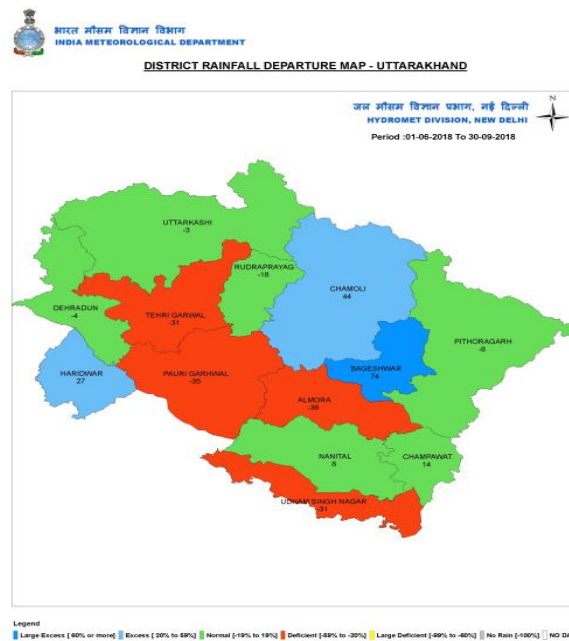
With 12% above normal rains, J&K experienced normal monsoon. However, out of 22 districts 8 has received over 20% excess rainfall. In addition to this Leh&Ladhakh (79%) and Bandipore (179%) districts have received large surplus rains. 2 districts are rain deficit with Kargil recording large deficit by -62%.

## HIMACHAL PRADESH



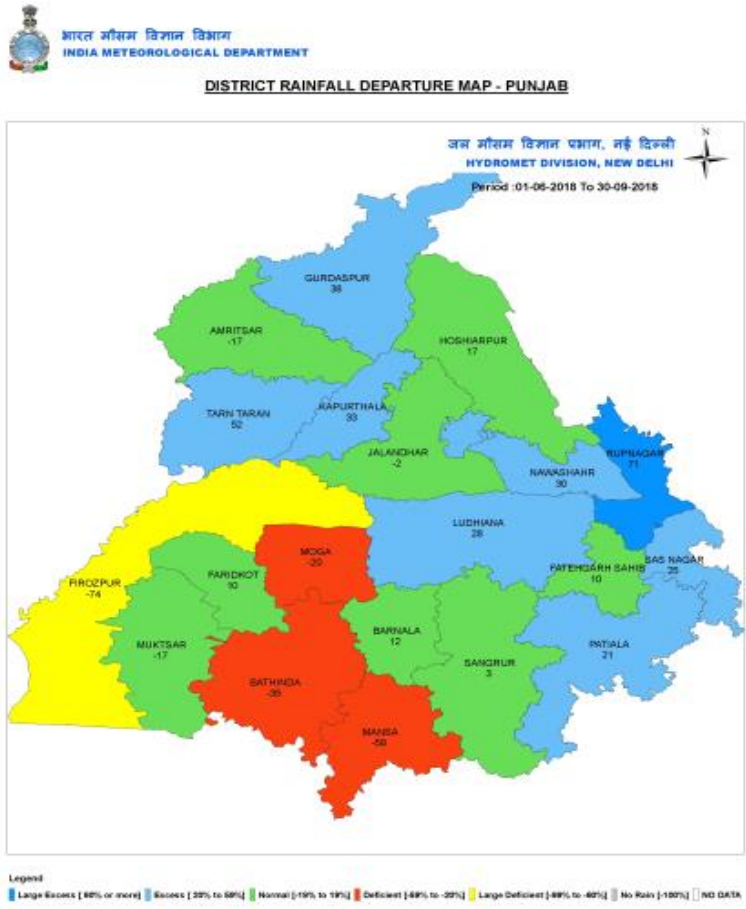
Himachal Pradesh received 917.3 mm rainfall during South West Monsoon 2018, 11 percent over normal rainfall of 825.3 mm. At district level there is considerable variation in the distribution of rainfall. Out of 12 districts in the state, rainfall has been in deficit in three districts namely Chamba, Kinnaur and Lahul&Spiti by 38 percent, 32 percent and 43 per cent respectively. All these three districts are in upper part of Himalaya, the origin of many rivers & where mountains are mostly snow covered.

## UTTRAKHAND



Uttarakhand received 3% below normal rainfall during South West Monsoon 2018. District level rainfall data paints a very different picture. Out of total 13 districts in the Himalayan state, four districts namely Almora, Pauri Garhwal, Tehri Garhwal and Udham Singh Nagar have received deficit rains, whereas three districts which includes Bageshwar, Chamoli and Haridwar have got above average rainfall. For more detail kindly see,

**PUNJAB**



Punjab districts with significant excess and deficit rains (Source: IMD)

Period: 01-06-2018 To 30-09-2018

SN	State	Actual (mm)	Normal (mm)	Dep. (%)	Cat.
	<b>PUNJAB</b>	<b>527.4</b>	<b>497.9</b>	<b>7%</b>	<b>N</b>
1	BATHINDA	209.1	321.0	-35%	D
2	<b>FIROZPUR</b>	<b>91.8</b>	<b>352.3</b>	<b>-74%</b>	<b>LD</b>

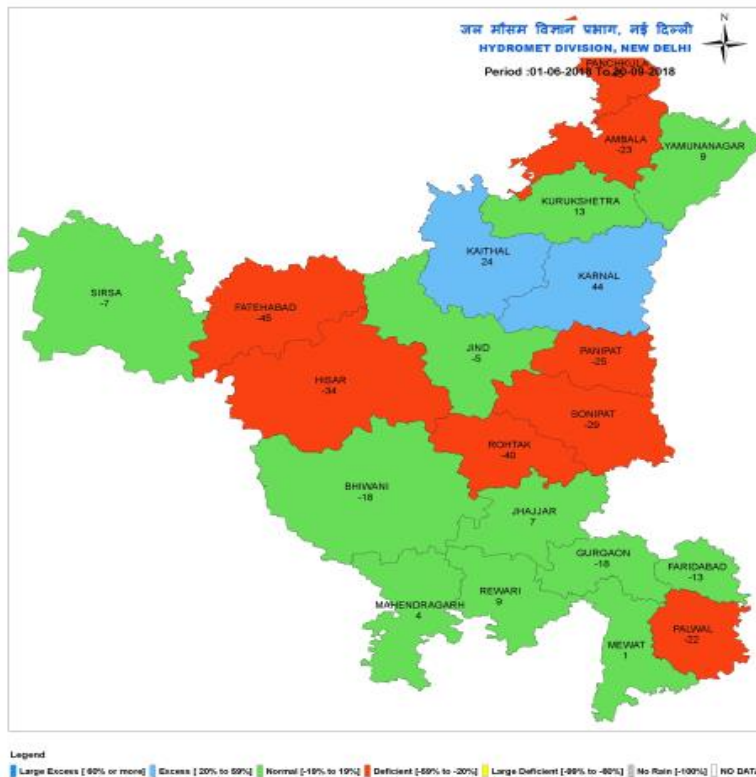
3	GURDASPUR	1144.3	827.8	38%	E
4	KAPURTHALA	562.9	422.6	33%	E
5	LUDHIANA	685.6	534.2	28%	E
6	<b>MANSA</b>	<b>142.0</b>	<b>334.8</b>	<b>-58%</b>	<b>D</b>
7	MOGA	281.5	354.0	-20%	D
8	NAWASHAHR	1027.9	788.6	30%	E
9	PATIALA	742.2	615.2	21%	E
10	<b>RUPNAGAR</b>	<b>1246.7</b>	<b>728.5</b>	<b>71%</b>	<b>LE</b>
11	SAS NAGAR	805.4	644.5	25%	E
12	<b>TARN TARAN</b>	<b>510.5</b>	<b>336.8</b>	<b>52%</b>	<b>E</b>

Punjab at state level had normal rainfall, with 7% above normal precipitation. Out of 22 districts 7 have received excess rain excluding Rupnagar in east which has recorded rainfall large excess by 71%. While, rainfall has been normal in 8 districts. There 3 districts with deficit monsoon apart from Firozpur in west registering large deficit of -74%.

### HARYANA



**DISTRICT RAINFALL DEPARTURE MAP - HARYANA**



**Haryana districts with significant excess and deficit rains (Source: IMD)**

**Period: 01-06-2018 To 30-09-2018**

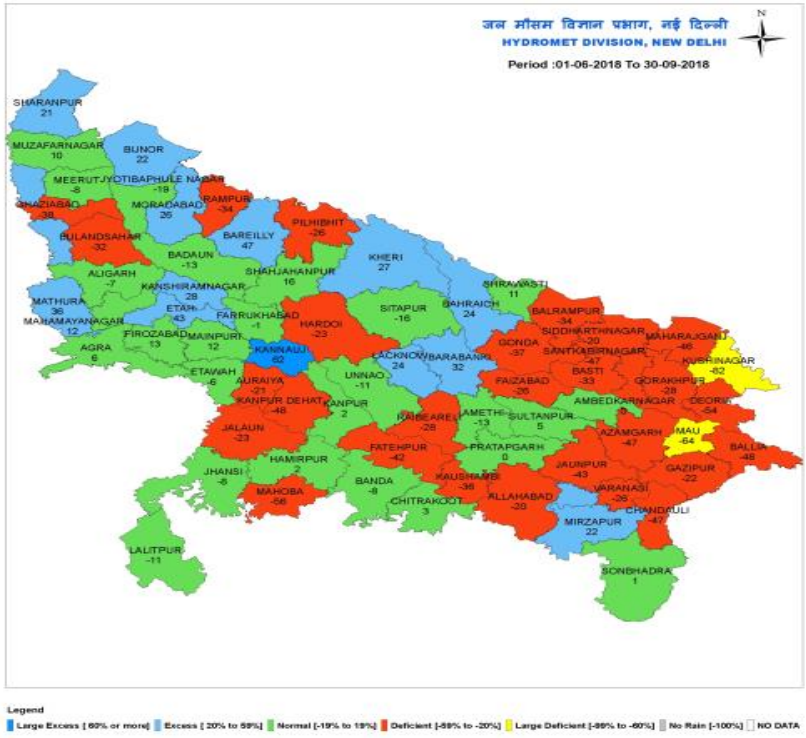
SN	State	Actual (mm)	Normal (mm)	Dep. (%)	Cat.
	<b>HARYANA</b>	<b>514.2</b>	<b>455.8</b>	<b>10%</b>	<b>N</b>
1	AMBALA	704.4	916.6	-23%	D
2	HISAR	213.7	325.1	-34%	D
3	KAITHAL	475.1	384.0	24%	E
4	KARNAL	828.0	577.0	44%	E
5	PALWAL	349.9	446.9	-22%	D
6	PANCHKULA	526.9	950.4	-45%	D
7	PANIPAT	392.5	521.7	-25%	D
8	ROHTAK	306.9	508.0	-40%	D
9	SONIPAT	378.3	534.3	-29%	D
10	FATEHABAD	157.1	283.0	-45%	D

With 10 % excess rain, Haryana rains falls in normal category, however out of 21 districts 8 are in deficit category whereas only two districts of Karnal and Kaithal have recorded excess rainfall.

UTTAR PRADESH



DISTRICT RAINFALL DEPARTURE MAP - UTTAR PRADESH



Uttar Pradesh District Wise Rainfall Distribution 2018 (Source: IMD)

Period: 01-06-2018 To 30-09-2018

SN	State	Actual (mm)	Normal (mm)	Dep. (%)	Cat.
	<b>UTTAR PRADESH</b>	<b>764.5</b>	<b>846.1</b>	<b>-10%</b>	<b>N</b>
1	ALLAHABAD	650.6	808.7	-20%	D
2	AZAMGARH	507.6	952.7	-47%	D
3	BAHRAICH	1235.7	993.8	24%	E
4	<b>BALLIA</b>	<b>429.0</b>	<b>827.2</b>	<b>-48%</b>	<b>D</b>
5	BALRAMPUR	707.6	1071.7	-34%	D
6	BARABANKI	1231.7	930.5	32%	E
7	BASTI	636.7	943.6	-33%	D

8	CHANDAULI	447.0	846.1	-47%	D
9	DEORIA	441.4	950.9	-54%	D
10	FAIZABAD	733.9	989.7	-26%	D
11	FATEHPUR	470.7	812.5	-42%	D
12	GAZIPUR	688.1	883.0	-22%	D
13	GONDA	648.8	1027.2	-37%	D
14	GORAKHPUR	845.3	1175.5	-28%	D
15	HARDOI	606.4	787.9	-23%	D
16	JAUNPUR	501.7	874.1	-43%	D
17	KANNAUJ	1260.7	776.7	62%	LE
18	KANPUR DEHAT	399.8	765.0	-48%	D
19	KAUSHAMBI	489.5	765.6	-36%	D
20	KHERI	1175.7	926.1	27%	E
21	KUSHINAGAR	207.6	1158.4	-82%	LD
22	LACKNOW	959.5	772.5	24%	E
23	MAHARAJGANJ	653.8	1214.1	-46%	D
24	MAU	362.3	1004.7	-64%	LD
25	MIRZAPUR	1099.8	901.1	22%	E
26	RAIBEARELI	536.8	750.3	-28%	D
27	SANT KABIR NAGAR	525.5	990.7	-47%	D
28	SANT RAVIDAS NAGAR	1262.0	846.1	49%	E
29	SIDDHARTH NAGAR	804.9	1009.9	-20%	D
30	VARANASI	679.9	923.5	-26%	D
31	AURAIYA	550.1	700.0	-21%	D
32	BAGHPAT	734.6	545.3	35%	E
33	BAREILLY	1256.5	853.8	47%	E
34	BIJNOR	1111.7	914.2	22%	E
35	BULANSAHAR	455.9	670.7	-32%	D
36	ETAH	877.1	615.3	43%	E
37	GAUTAMBUDHNAGAR	754.0	572.8	32%	E
38	GHAZIABAD	396.2	641.7	-38%	D
39	JALAUN	600.4	774.9	-23%	D
40	JYOTIBAPHULE NAGAR	637.5	783.0	-19%	N
41	KANSHIRAMNAGAR	899.9	701.5	28%	E
42	MAHOBA	340.4	776.4	-56%	D
43	MATHURA	789.7	579.9	36%	E

44	MORADABAD	1081.6	855.2	26%	E
45	PILHIBHIT	733.1	988.6	-26%	D
46	RAMPUR	604.7	915.5	-34%	D
47	SHARANPUR	977.2	804.6	21%	E

Uttar Pradesh has received 10% below normal rainfall. Out of 75 districts, South west monsoon 2018 has left 30 rain deficit. The shortfall is as wide as more than 40% in 10 districts in addition to Mau and Kushinagar recording large deficits of -64% and -82% respectively. 16 districts have been rain surplus and only one district of Kannauj has received rainfall in large excess, of 62%.

### DELHI



### Delhi District Wise Rainfall Distribution 2018 (Source: IMD)

Period: 01-06-2018 To 30-09-2018

SN	State	Actual (mm)	Normal (mm)	Dep. (%)	Cat.
	<b>DELHI</b>	<b>630.4</b>	<b>636.2</b>	<b>-1%</b>	<b>N</b>
1	CENTRAL	518.0	636.2	-19%	N
2	EAST	450.2	636.2	-29%	D
3	NORTH	779.1	636.2	22%	E



4	NORTH EAST	498.5	636.2	-22%	D
5	NORTH WEST	516.3	636.2	-19%	N
6	SOUTH WEST	760.4	636.2	20%	E

With 1% below normal rainfall deficit, Delhi had normal monsoon. As per the week by week data, out of 17 monsoon weeks, most rainfall occurred in just 7 weeks and there were 5 weeks with no or very little rains.

### Delhi District Wise: Week By Week Rainfall Departures

Period: 01-06-2018 To 30-09-2018 (Source: IMD)

SN	DELHI (UT)	Week End 6-6- 2018	Week End 13-6- 2018	Week End 20-6- 2018	Week End 27-6- 2018	Week End 4-7- 2018	Week End 11-7- 2018	Week End 18-7- 2018	Week End 25-7- 2018	Week End 1-8- 2018	Week End 8-8- 2018	Week End 15-8- 2018	Week End 22-8- 2018	Week End 29-8- 2018	Week End 5-9- 2018	Week End 12-9- 2018	Week End 19-9- 2018	Week End 26-9- 2018
1	CENTRAL	-100	-40	-100	-13	-28	-75	37	-63	60	-75	-83	-71	106	53	-28	-100	243
2	EAST					87				402	-90	-78	-76	137	-100			
3	NEW DELHI	-100	-56	-100	-66	70	-21	25	-14	58	-86	-17	-50	-11	213	-15	-100	325
4	NORTH	-100	25	-100	-88	109	-91	176	23	20	-85	-63	-67	66	331	49	-100	184
5	NORTH EAST					117	-99	-56	18	76	-76	-52	-96	2	81	77	-100	79
6	NORTH WEST	-100	10	-100	-94	-37	-83	92	-70	128	-93	-88	-74	91	1	-28	-100	225
7	SOUTH	-100	73	-100	-100	75	-95	20	-51	45	-8	-89	20	38	-34	91	-100	475
8	SOUTH WEST	-100	336	-100	-99	171	-92	-57	92	137	-59	-92	-70	181	20	145	-100	435
9	WEST	-100	90	-100	-95	-28	-89	-97	117	227	-65	-95	-28	404	-100	-60	-100	557

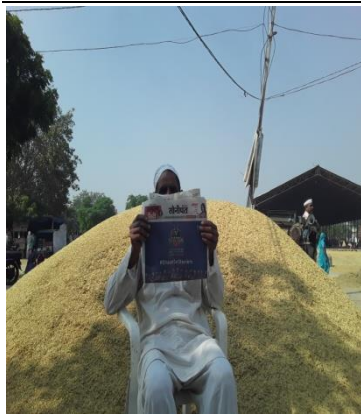
## Annexure 5

### Basmati crop diseases & commonly used pesticides

S.No.	Crop Stages	Diseases & Pests	Pesticides
1	Milking stage	Brown plant Hopper	Buprofezin 25 % SC - 330 ml/Acre
2	Tillering to heading stage	Sheath blight	Hexaconazole 5 % SC or Vaalidamycin 3 % L- 400 ml/ Acre
3	After flowering only	False smut	Propiconazole 1ml/litr water/acre
4	Late booting stage	Sheath Rot	Lamdacyclothrin 5 % - 250 ml/Acre
5	mid-tillering stage	Stem Rot	mancozeb or carbendazim @ 1.5–2.5g/litre
6	Observed 1-3 weeks after transplanting	Bacterial Leaf Blight	copper oxychloride 500 g + streptocycline 7.5 g in 500 litre/ha or Bectra - 20 gm
7	Seedling and adult stage	Blast	Tebuconazole - 200 ml /Acre
8	Appears in nursery & may also appear after 10–15 days of transplanting	Khaira	zinc sulphate (5 kg) and lime (2.5 kg) in 500 litres of waters after 10 days of sowing
9	15 - 25 Days after transplanting	Stem Borer, Leaf Folder	Cartap hydrochloride 4% Gr 7.5 to 10 Kg Per Acre

## Collage of Basmati Survey









**Basmati Export Development Foundation  
APEDA, New Delhi**

**Prepared by  
Geotrans Technologies Pvt. Ltd.**