

## State: Jammu and Kashmir

### Agriculture Contingency Plan for District: Rajouri

1.0 District Agriculture profile*			
1.1	Agro-Climatic/Ecological Zone		
	Agro Ecological Sub Region (ICAR)	Western Himalayas, Warm Subhumid (To Humid With Inclusion Of Perhumid) Eco-sub region. (14.2)	
	Agro-Climatic Zone (Planning Commission)	Western Himalayan Region (I)	
	Agro Climatic Zone (NARP)	Mid to High Altitude Intermediate Zone (JK-2) & Mid to High Altitude Temperate Zone (JK-3)	
	List all the districts falling under the NARP Zone* (*>50% area falling in the zone)	Poonch, Reashi, Jammu	
	Geographic coordinates of district headquarters headquarters	Latitude	Longitude
		32.55 N	75.11 E
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS	RARS Rajouri	
	Mention the KVK located in the district with full address	KVK Rajouri	
	Name and address of the nearest Agromet Field Unit (AMFU, IMD) for agro-advisories in the Zone	AMFU, Rajouri	

1.2	Rainfall	Normal RF(mm)	Normal Rainy days (number)	Normal Onset	Normal Cessation
	SW monsoon (June-Sep):	-	-	4 <sup>th</sup> week of June	
	NE Monsoon(Oct-Dec):	-	-		
	Winter (Jan- February)	-	-	-	-
	Summer (March-May)	-	-	-	-
	Annual	-	-	-	-

1.3	Land use pattern of the district (latest statistics)	Geographical Area	Cultivable area	Forest area	Land under non-agricultural use	Permanent pastures	Cultivable wasteland	Land under Misc. tree crops and groves	Barren and uncultivable land	Current fallows	Other fallows
	Area ('000 ha)	-	-	-	-	-	-	-	-	-	-

1.4	Major Soils (common names like red sandy loam deep soils (etc.))*	Area ('000 ha)**	Percent (%) of total geographical area
	1. Brown red soil		
	2. Sub mountainous soil		

\* mention colour, depth and texture (heavy, light, sandy, loamy, clayey etc) and give vernacular name, if any, in brackets (data source: Soil Resource Maps of NBSS & LUP); \*\* Pl. give the details of the major soils occupying more than 5% of total geographical area. Degree of soil acidity (pH) may also be indicated

1.5	Agricultural land use	Area ('ha)	Cropping intensity %
	Net sown area	53638	163
	Area sown more than once	44821	
	Gross cropped area	98459	

1.6	Irrigation	Area ('000 ha)		
	Net irrigated area	4906		
	Gross irrigated area			
	Rainfed area			
	<b>Sources of Irrigation</b>	Number	Area ('000 ha)	Percentage of total irrigated area
	Canals		2776	
	Tanks			
	Open wells		178	
	Bore wells/ Dug wells	3		
	Lift irrigation schemes			
	Micro-irrigation			
	Other sources (please specify)		1930	
	Total Irrigated Area			
	Pump sets			

	No. of Tractors			
	<b>Groundwater availability and use* (Data source: State/Central Ground water Department /Board)</b>	No. of blocks/ Tehsils	(%) area	Quality of water (specify the problem such as high levels of arsenic, fluoride, saline etc)
	Over exploited			
	Critical			
	Semi- critical			
	Safe			
	Wastewater availability and use			
	Ground water quality			
*over-exploited: groundwater utilization > 100%; critical: 90-100%; semi-critical: 70-90%; safe: <70%				

### 1.7 Area under major field crops & horticulture

1.7	Major field crops cultivated	Area ('000 ha)							
		<i>Kharif</i>			<i>Rabi</i>			Summer	Grand total
		Irrigated	Rainfed	Total	Irrigated	Rainfed	Total		
	Paddy	5.291	-	-	-	-	-	-	-
	Maize	-	-	-	-	46.643	-	-	-
	Wheat	-	-	-	-	45.306	-	-	-
	Millets	-	-	-	-	0.602	-	-	-
	Pulses	-	-	-	-	0.321	-	-	-
		-	-	-	-		-	-	-

	<b>Horticulture crops -</b>	<b>Area ('000 ha)</b>
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	<b>Fruits</b>	<b>Total</b>	<b>Irrigated</b>	<b>Rainfed</b>
	<b>Apple</b>	-	-	1160.90 ha
	<b>Pear</b>	-	-	1344.60 ha
	<b>Apricot</b>	-	-	299.80 ha
	<b>Citrus</b>	-	-	3375.20 ha
	<b>Mango</b>	-	-	391.10 ha
	<b>Horticulture crops - Vegetables</b>	-	-	
	<b>Medicinal and Aromatic crops</b>	-	-	
	<b>Plantation crops</b>	-	-	
	<b>Fodder crops</b>	-	-	
	<b>Total fodder crop area</b>	-		
	<b>Grazing land, reserve areas etc</b>	<b>3995 ha</b>		
	<b>Availability of unconventional feeds/by products eg., breweries waste, food processing, fermented feeds bamboo shoots, fish etc</b>			
	<b>Sericulture etc</b>			
	<b>Other agro enterprises</b>			

	<b>(mushroom cultivation etc specify)</b>			
	<b>Others (specify)</b>			

<b>1.8</b>	<b>Livestock</b>	<b>Male ('lakhs)</b>	<b>Female (lakhs)</b>	<b>Total (lakhs)</b>			
	Indigenous cattle	0.660	0.970	1.950			
	Improved / Crossbred cattle	-	-	-			
	Buffaloes (local low yielding)	0.190	1.430	1.660			
	Improved Buffaloes	-	-	-			
	Goat	-	-	1.686			
	Sheep	-	-	2.559			
	Pig	-	-	0.003			
	Mithun	-	-	-			
	Yak	-	-	-			
	Others (Horse, mule, donkey etc., specify)	-	-	0.041; ; 0.012			
	Commercial dairy farms (Number)						
<b>1.9</b>	<b>Poultry</b>	<b>No. of farms</b>	<b>Total No. of birds ('000)</b>				
	Commercial		3.290 lakhs				
	Backyard						
<b>1.10</b>	<b>Fisheries (Data source: Chief Planning Officer)</b>						
	<b>A. Capture</b>						
	<b>i) Marine (Data Source: Fisheries Department)</b>	<b>No. of fishermen 566 (registered)</b>	<b>Boats</b>		<b>Nets</b>		<b>Storage facilities (Ice plants etc.)</b>
			Mechanized	Non-mechanized	Mechanized (Trawl nets, Gill nets)	Non-mechanized (Shore Seines, Stake & trap nets)	
	<b>ii) Inland (Data Source:</b>	<b>No. Farmer owned ponds</b>		<b>No. of Reservoirs</b>		<b>No. of village tanks</b>	

	Fisheries Department)			
	<b>B. Culture</b>			
		<b>Water Spread Area (ha)</b>	<b>Yield (t/ha)</b>	<b>Production ('000 tons)</b>
	i) <b>Brackish water</b> (Data Source: MPEDA/ Fisheries Department)			4810 qtls
	ii) <b>Fresh water</b> (Data Source: Fisheries Department)			
	<b>Others</b>			

### 1.11 Production and Productivity of major crops

1.11	Name of crop	Kharif		Rabi		Summer		Total		Crop residue as fodder ('000 tons)
		Production ('000 t)	Productivity (kg/ha)							
<b>Major Field crops (Crops to be identified based on total acreage)</b>										
	Rice	63.36	11.97q/ha	-	-	-	-	-	-	-
	Maize	845.37	18.12 q/ha	-	-	-	-	-	-	-
	Wheat	705.82	15.57 q/ha	-	-	-	-	-	-	-
	Millets	4.05		-	-	-	-	-	-	-
	Pulses	1.97		-	-	-	-	-	-	-
<b>Major Horticultural crops (Crops to be identified based on total acreage)-</b>										

1.12	Sowing window for 5 major field crops (start and end of normal sowing period)	Maize	Cowpea	Rajmash	Wheat	Rabi oilseed
	Kharif- Rainfed	√	√	√		
	Kharif-Irrigated		√			
	Rabi- Rainfed				√	√
	Rabi-Irrigated				√	
	Summer-irrigated					
	Summer-rainfed					

1.13	What is the major contingency the district is prone to? (Tick mark)	Regular*	Occasional	None
	Drought	√		
	Flood	√		
	Cyclone			√
	Hail storm	√		
	Heat wave	√		
	Cold wave	√		
	Frost	√		
	Sea water intrusion			√
	Snowfall	√		
	Landslides	√		
	Earthquake	√		
	Pests and disease outbreak (specify)	√		
	Others (like fog, cloud bursting etc.)	√		

\*When contingency occurs in six out of 10 years

1.14	Include Digital maps of the district for		
		Location map of district within State as Annexure I	Enclosed: Yes
		Mean annual rainfall as Annexure 2	Enclosed: No
		Soil map as Annexure 3	Enclosed: No

## 2.0 Strategies for weather related contingencies

### 2.1 Drought

#### 2.1.1 Rainfed situation (RAJOURI)

Under Temperate region sowing of Normal *Kharif* crops starts in 1<sup>st</sup> Week of April with melting of ice received during winter season (Dec. to Feb.)

Condition	For Temperate Region		Suggested Contingency measures		
	Major Farming situation <sup>a</sup>	Normal Crop / Cropping system <sup>b</sup>	Change in crop / cropping system <sup>c</sup> including variety	Agonomic measures	Remarks on Implementation <sup>e</sup>
<b>Early season drought (delayed onset)</b> <b>Delay by 2 weeks</b> <b>15<sup>th</sup> to 30 April</b> <b>16<sup>th</sup> &amp; 17<sup>th</sup> SMW</b>	<b>Low rainfall</b> Sandy loam clay (Entisols)	<b>Maize -potato</b>	<b>Maize:</b> Hybrid: Kanchan-517, Pro-agro-4794, Composite: C2, C6, Him-123	<ul style="list-style-type: none"> <li>Use 35-40 kg seed /ha</li> <li>Ploughing/Ridges and furrow/ sowing should be done across the slope to conserve moisture</li> </ul>	

	<b>Temperate Region</b>	<b>Rajmash</b> (Local)-wheat	<b>Maize + Rajmash</b> (Local) Maize (C-15,REHMAT, Local tall) + Rajmash (Local)in the ratio 8:1	<ul style="list-style-type: none"> <li>For achieving the optimum plant population in crust prone areas, amendments like Branker leaves, FYM, Cowpea straw of 1 cm thick layers may be used on the sown rows.</li> </ul>	
		Intercropping Maize + Rajmash			
		<b>Rice - wheat</b>	Rice (K-39, K-448, China-1039, Giza-14)	<ul style="list-style-type: none"> <li>Compartmental bunding is done to conserve the water</li> </ul>	
<b>Mid Season drought</b>	<b>Low rainfall</b> Sandy loam clay (Entisols) <b>Temperate Region</b>	No change	No change	<ul style="list-style-type: none"> <li>Conserve soil moisture by laying mulches</li> <li>Use foliar application of urea (3%) during dry spells before silking</li> <li>Apply life saving irrigation from local river/nallah water</li> </ul>	
<b>Late season drought</b>		No change	Early Sown wheat variety HS-240, PBW-175 Mustard var. RLM198 and Pusa Bold	<ul style="list-style-type: none"> <li>If crop stand is poor then use of crop as fodder</li> <li>Sowing of early sown wheat varieties OR Toria/Toria+Gobhi sarson</li> </ul>	
<b>Delay by 4 weeks</b> 1 <sup>st</sup> to 15 <sup>th</sup> May 18 <sup>th</sup> & 19 <sup>th</sup> SMW	<b>Low rainfall</b> Sandy loam clay (Entisols)	No change	No change	<ul style="list-style-type: none"> <li>Ploughing/Ridges and furrow/ sowing should be done across the slope to conserve moisture</li> </ul>	
<b>Condition</b>	<b>For Intermediate region</b>		<b>Suggested Contingency measures</b>		
<b>Early season drought (delayed onset)</b>	<b>Major Farming situation<sup>a</sup></b>	<b>Normal Crop / Cropping system<sup>b</sup></b>	<b>Change in crop / cropping system<sup>c</sup> including variety</b>	<b>Agronomic measures</b>	<b>Remarks on Implementation</b>
<b>Delay by 2 weeks</b> 1 <sup>st</sup> to 15 <sup>th</sup> May 18 <sup>th</sup> & 19 <sup>th</sup> SMW	<b>Medium rainfall</b> (Alfisols)  <b>Intermediate region</b>	<b>Maize</b>	Maize var. GS-2, Mansar Vijay Kanchan-517, (local)	<ul style="list-style-type: none"> <li>Sowing of maize done on ridges and furrow and it should be across the slope to conserve maximum moisture in the soil</li> </ul>	
		Intercropping <b>Maize + Rajmash</b>  <b>Kharif pulses</b> <b>Moong/ mash</b>	Maize var. Local + Rajmash (local) in the ratio of 8:1  Mash (Uttara)	<ul style="list-style-type: none"> <li>For achieving the optimum plant population in crust prone areas, amendments like Branker leaves, FYM, Cowpea straw of 1 cm thick layers may be used on the sown rows.</li> </ul>	
		<b>Irrigated rice)</b>	<b>Rice</b> ( K-39, K-343, China-1039)	<ul style="list-style-type: none"> <li>Compartmental bunding is done to conserve the water</li> <li>Contour sowing may be done against the slope and inter cultivation may</li> </ul>	

				<ul style="list-style-type: none"> <li>be done to conserve the moisture.</li> <li>• Use local river/ conserved water</li> </ul>	
Mid Season drought	No change	No change	No Change	<ul style="list-style-type: none"> <li>• Conserve soil moisture by laying mulches</li> <li>• Use foliar application of urea (3%) during dry spells before silking</li> </ul>	
Late season drought			Early Sown wheat variety HS-240, PBW-175 Mustard var. RLM198 and Pusa Bold	<ul style="list-style-type: none"> <li>• If crop stand is poor then use of crop as fodder</li> <li>• Sowing of early sown wheat varieties OR Toria/Toria+Gobhi sarson</li> </ul>	
<b>Delay by 4 weeks</b> 16 <sup>th</sup> to 30 <sup>th</sup> May 20 <sup>th</sup> & 21 <sup>st</sup> SMW		Cheena  Mixed fodder	Cheena red  Maize + rajmash + bajra	Sowing of cheena red should be done Sowing of mixed cropping of maize and rajmash + bajra for fodder purposes done in the area where sowing of maize/ rice crop is not done timely	
<b>Condition</b>	<b>For Sub-Tropical region</b>		<b>Suggested Contingency measures</b>		
<b>Early season drought (delayed onset)</b>	<b>Major Farming situation</b>	<b>Normal Crop / Cropping system</b>	<b>Change in crop / cropping system including variety</b>	<b>Agronomic measures</b>	<b>Remarks on Implementation</b>
<b>Delay by 2 weeks (5<sup>th</sup> to 15<sup>th</sup> July)*</b> 27 <sup>th</sup> & 28 <sup>th</sup> SMW	<b>Medium rainfall</b> <b>Brown red</b> <b>Yellow sub mountainous (Utisols)</b>  <b>Sub-Tropical region</b>	Maize –wheat Maize –gobi sarson Rice- wheat Kharif pulses – rabi oised Sesame – chickpea  Intercropping Maize + Moong/mash Maize+ cowpea	Maize (C-8, C-5, Mansar) Black gram (Pant U-19)  Sesame(PB Til-1)  Maize : Pulses(2:1)  Cowpea(C-152, PS-42).	<ul style="list-style-type: none"> <li>• Contour sowing may be done against the slope and inter cultivation may be done to conserve the moisture</li> <li>• Compartmental bunding is done to conserve the water</li> <li>• For achieving the optimum plant population in crust prone areas, amendments like Branker leaves, FYM, Cowpea straw of 1 cm thick layers may be used on the sown rows.</li> </ul>	
<b>Mid season drought</b>		No change	No change	<ul style="list-style-type: none"> <li>• Conserve soil moisture by laying mulches</li> <li>• Use local available plant material for mulch</li> <li>• Use foliar application of urea (1%) during dry spells before silking instead of top N dress</li> <li>• Use anti-transpirants, life saving</li> </ul>	

				irrigation if available
<b>Late season drought or terminal drought</b>		No change	No change	<ul style="list-style-type: none"> <li>• Life saving irrigation from rain water harvest ponds</li> <li>• Salicylic acid spray to induce early maturity</li> </ul>
<b>Delay by 4 weeks ( 16<sup>th</sup> to 31<sup>st</sup> July)*</b> <b>29<sup>th</sup> &amp; 30<sup>th</sup> SMW</b>	Medium rainfall Brown red Yellow sub mountainous (Utisols) Sub-Tropical region	Green gram/ black gram  Mixed fodder  Bajra  Irrigated rice	Pant U-19, Uttara PDM-54, ML-131, ML-818  Maize (Local)+ cowpea + Bajra Bajra(MHB-110, MH-179, WCC Rice variety ( K-39, K-343)	<ul style="list-style-type: none"> <li>• Sowing of late variety of Kharif pulses can be done</li> <li>• Mixed fodder also can be sown</li> <li>• Bajra can also be sown in the later part of July <i>i.e</i> upto last week of July</li> <li>• Transplant one month old nursery and transplant 4-5 plant/hill</li> <li>• Use local river/nallah water</li> <li>• Compartmental bunding is done to conserve the water</li> </ul>
<b>Delay by 6 weeks ( 1<sup>st</sup> to 14<sup>th</sup> August)*</b> <b>31<sup>st</sup> &amp; 32<sup>nd</sup> SMW</b>	Medium rainfall Brown red Yellow sub mountainous (Utisols)  Sub-Tropical region	Green gram/ black gram  Mixed fodder  Bajra	Pant U-19, Uttara PDM-54, ML-131, ML-818  Maize (Local)+ cowpea + Bajra Bajra(MHB-110, MH-179, WCC	<ul style="list-style-type: none"> <li>• Ploughing/Sowing across the slope</li> <li>• Compartmental bunding is done to conserve the water</li> </ul>
<b>Delay by 8 weeks ( 15<sup>th</sup> to 30<sup>th</sup> August)*</b> <b>33<sup>rd</sup> &amp; 34<sup>th</sup> SMW</b>	Medium rainfall Brown red Yellow sub mountainous (Utisols)  Sub-Tropical region	Toria Radish  Gobi sarson	RSPT-1 and RSPT-2 Japanese White, Pusa Reshmi & Pusa Himani  GSL-I, GSL-2 & DGS –1.	<ul style="list-style-type: none"> <li>• If crop stand is poor then use of crop as fodder</li> <li>• Sowing of Toria/Gobhi sarson/radish/Peas in good moisture from last rains</li> <li>• Residual moisture of receding monsoon rains should be conserved in-situ through tillage practice</li> <li>• Sowing of Radish/Peas/Toria as catch crop</li> </ul>

**Temperate Region** Sowing is accomplished during the **second fortnight of April**. Moisture received from local rains during **April**.  
**Intermediate region** Sowing accomplished in **May**. Moisture received from local rains during month of **May**.  
**Sub tropical region** sowing of *kharif* crops done with the onset of monsoon (30<sup>th</sup> June ± 7 days and withdrawal 15<sup>th</sup> Sept. ± 8 days)