State: Jammu and Kashmir

Agriculture Contingency Plan for District: Jammu

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)	Low Altitude Sub-Tropical Zone (JK-1) & Mid to High Altitude Intermediate Zone (JK-2)		
	List all the districts falling under the NARP Zone* (*>50% area falling in the zone)	Doda, Jammu, Kathua, Udhampur		
	Geographic coordinates of district headquarters head quarters	Latitude	Longitude	Altitude
		32^0.33 to 33^0. 07 N	74^0.27 to 77^0.21 E	348 m AMSL
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS	SKUAST-J, Main Campus Chatha		
	Mention the KVK located in the district with full address	KVK R. S. Pura		
	Name and address of the nearest Agromet Field Unit (AMFU, IMD) for agro-advisories in the Zone	AMFU, Jammu		

1.2	Rainfall	Normal RF(mm)	Normal Rainy days (number)	Normal Onset	Normal Cessation
	SW monsoon (June-Sep):	866.0	34	-	-
	NE Monsoon(Oct-Dec):	62.9	4	-	-
	Winter (Jan- February)	97.3	9	-	-
	Summer (March-May)	130.3	7	-	-
	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)	237.024	-	29.793	24.816	6.335	17.925	7.728	44.173	8.411	.821

1. 4	**Major Soils (common names like red sandy loam deep soils (etc.,)***	**Area ('000 ha)****	**Percent (%) of total geographical area**
	Brown red soil		
	Sub mountainous soil		
	Hapludals		

1.5	**Agricultural land use**	Area ('000 ha)	Cropping intensity %
	Net sown area	81.192	209

	Area sown more than once	-	
	Gross cropped area	-	

1.6	**Irrigation**	Area (‘000 ha)		
	Net irrigated area	55.748		
	Gross irrigated area			
	Rainfed area			
	Sources of Irrigation	Number	Area (‘000 ha)	Percentage of total irrigated area
	Canals		49.810	-
	Tanks		1.624	
	Open wells		2.400	
	Bore wells/ Tube wells	46		
	Lift irrigation schemes			
	Micro-irrigation			
	Other sources (please specify)		1914	
	Total Irrigated Area			
	Pump sets			
	No. of Tractors			
	Groundwater availability and use* (Data source: State/Central Ground water Department /Board)	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)							
		Kharif			*Rabi*				
		Irrigated	**Rainfed**	**Total**	**Irrigated**	**Rainfed**	**Total**	**Summer**	**Grand total**
	Rice	33.33	-	-	-	22.22	-	-	-
	Maize	3.44	-	-	-	10.01	-	-	-
	Wheat	52.51	-	-	-	35.10	-	-	-
	Millets	-	-	-	-	10.88	-	-	-
	Pulses	-	-	-	-	4.679	-	-	-

	Horticulture crops - Fruits	**Area ('000 ha)**		
		Total	**Irrigated**	**Rainfed**
	Peach	-	-	**18.46 ha**
	Citrus	-	-	**2143.90 ha**
	Mango	-	-	**2990.00 ha**
	Ber	-	-	**2783.54 ha**
	Guava	-	-	**647 ha**
	Horticulture crops -	-	-	-

	Vegetables			
	Medicinal and Aromatic crops	-	-	-
	Plantation crops	-	-	-
	Fodder crops	-	-	-
	Total fodder crop area	-	-	-
	Grazing land, reserve areas etc	**3995 ha**		
	Availability of unconventional feeds/by products eg., breweries waste, food processing, fermented feeds bamboo shoots, fish etc	-	-	-
	Sericulture etc **Other agro enterprises (mushroom cultivation etc specify)**	-	-	-
	Others (specify)			

1.8	Livestock	Male (lakhs)	Female (lakhs)	Total (lakhs)
	Indigenous cattle	0.2	1.60	2.08
	Improved / Crossbred cattle			
	Buffaloes (local low yielding)	0.065	1.30	1.615
	Improved Buffaloes			
	Goat			1.54
	Sheep			0.59
	Pig			0.005
	Mithun			
	Yak			
	Others (Horse, mule, donkey etc., specify)			0.060; ; 0.010
	Commercial dairy farms (Number)			

1.9	Poultry	No. of farms	Total No. of birds ('000)
	Commercial		6.533 lakhs
	Backyard		

1.10 **Fisheries** (Data source: Chief Planning Officer)

A. Capture

i) **Marine** (Data Source: Fisheries Department)	No. of fishermen	Boats		Nets		Storage facilities (Ice plants etc.)
		Mechanized	Non-mechanized	Mechanized (Trawl nets, Gill nets)	Non-mechanized (Shore Seines, Stake & trap nets)	
	1212 (registered)					

ii) **Inland** (Data Source: Fisheries Department)	No. Farmer owned ponds	No. of Reservoirs	No. of village tanks

B. Culture

		Water Spread Area (ha)	Yield (t/ha)	Production ('000 tons)

	i) **Brackish water** (Data Source: MPEDA/ Fisheries Department)			7520 qtls
	ii) **Fresh water** (Data Source: Fisheries Department)			
	Others			

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)	Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	
Major Field crops (Crops to be identified based on total acreage)										
	Rice	1085.28	19.53 q/ha	-	-	-	-	-	-	-
	Maize	1738.53	20.99 q/ha	-	-	-	-	-	-	-
	Wheat	303.35	19. 86 q/ha	-	-	-	-	-	-	-
	Millets	21.41		-	-	-	-	-	-	-
	Pulses	113.00		-	-	-	-	-	-	-
Major Horticultural crops (Crops to be identified based on total acreage)										

1.12	**Sowing window for 5 major field crops**	**Rice**	**Maize**	**Greengram / Mash**	**Wheat**	**Oilseeds**
	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

Annexure-I


JAMMU AND KASHMIR
Kupwara
Bandipora
Baramulla
Srinagar
Budgam
Pulwama
Anantnag
Punch
Kulgam
Kishtwar
Rajouri
Kargil
Leh(Ladakh)
Kathua


HAVELI
PUNCH
SURANKOTE
MENDHAR
THANAMANDI
RAJAURI
BUDHAL
RAJAURI
KALAKOTE
NOWSHERA
SUNDERBANI
AKHNOOR
JAMMU
JAMMU
RAMBIRSINGH PORA
BISHNAH
SAMBA
SAMBA
HIRANAGAR
KATHUA
KATHUA
BILLAWAR
BASHOHLI
RAMNAGAR
UDHAMPUR
UDHAMPUR
CHENANI
REASI
GOOLGULABGRAH
REASI
BANIHAL
RAMBAN
RAMBAN
DODA
BHADERWAH
THATHRI
DODA
BHALESA
KISHTWAR
KISHTWAR

2.0 Strategies for weather related contingencies

2.1 Drought sss

2.1.1 Rainfed situation (JAMMU) Normal onset & Withdrawal of monsoon: 27th June ± 10 days & 21st Sept. ± 7 days

Condition			Suggested Contingency measures		
Early season drought (delayed onset)	**Major Farming situation**	**Normal Crop / Cropping system**	**Change in crop / cropping system including variety**	**Agronomic measures**	**Remarks on Implementation**
Delay by 2 weeks (5th to 15th July)* **27th & 28th SMW**	**High Rainfall Sandy loam soils Sub-Tropical region**	**Maize**	**Maize** (Hybrid: GS-2, Kanchan 517, double dekalb) Composites : Mansar(C-2), Trikuta, C-8, Intercropping of Maize+ pulse (2:1)	• 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. • Conserve soil moisture by laying mulches • Use foliar application of urea (3%) during dry spells before silking	-
		Pulses :Mash (Black gram) Green Gram (Moong)	Pulses : Mash var. Pant U-19, Uttra Green Gram: PDM-54, ML-131 Mash 338	• Ploughing/Sowing across the slope • Compartmental bunding is done to conserve the water	
		Sesame	➢ **Sesame (PB Til-1)**	• Ploughing/Sowing across the slope Compartmental bunding is done to conserve the water	
		Bajra (Hybrid: MHB-110, MH-179)	• Intercropping of **bajra** (Composite: WCC-75, I-CMS-7703) + **cowpea** (C-152, PS-42, Culture-1) / **urd** (Pant U-19, Uttara) / **moong** (PDM-54, ML-131, ML-818).	• Compartmental bunding is done to conserve the water	

Condition			Suggested Contingency measures		
Early season drought (delayed onset)	**Major Farming situation**	**Normal Crop / Cropping system**	**Change in crop / cropping system[c] including variety**	**Agronomic measures**	**Remarks on Implementation**
Delay by 4 weeks **(16th to 31st July)*** **29th & 30th SMW**	**High rainfall Sandy loam soils Sub-Tropical region**	**Maize** (Hybrid: GS-2, Kanchan 517)	➢ **In last week of July**: **Maize** (fodder) ➢ Fodder: Mixed fodder of **maize** (African tall) + **cowpea** (EC 4216, Type-2)/ **cluster bean** (Ageta-Guara-III). ➢ Maize (African tall) + cowpea (EC-4216, Type-2) ➢ Bajra (WCC-75, ICMS-7703) + cowpea (EC-4216, Type-2) ➢ Jowar + cowpea (EC-4216, Type-2)	• Ploughing/ Ridges and furrow/ /sowing should be done across the slope to conserve moisture • 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. • Conserve soil moisture by laying mulches • Use foliar application of urea (3%) during dry spells before silking	
		Green gram/ black gram	➢ Local cultivars of **green gram** or **black gram** re recommended	• Ploughing/Sowing across the slope • Compartmental bunding is done to conserve the water	
		Bajra	**Bajra** MHB-110, MH-179	• Ploughing/Sowing across the slope ➢ Compartmental bunding is done to conserve the water	
		Sesame	➢ Intercropping of **sesame** (Punjab Til-1) + **black gram** (Local)	➢ Sesame and black gram should be intercropped with 1 : 1 ratio by following '*Kera*' method of sowing.	

Condition			Suggested Contingency measures		
Early season drought (delayed onset)	**Major Farming situation**	**Normal Crop / Cropping system**	**Change in crop / cropping system including variety**	**Agronomic measures**	**Remarks on Implementation**
Delay by 6 weeks **(1st to 14th August)** **31st & 32nd SMW**	**High rainfall Sandy loam soils Sub-Tropical region**	**Maize** (fodder)	Maize (African tall) + cowpea (EC-4216, Type-2) for fodder purposes	• Ploughing/Sowing across the slope • Compartmental bunding is done to conserve the water	
		Green gram/	**Green gram** (Local) for green manure and moisture conservation for next season purposes.		
		Black gram	Black gram var. utera can be sown under late condition		
		Mixed fodder	Bajra (WCC-75, ICMS-7703) + cowpea (EC-4216, Type-2) for fodder. Jowar + cowpea (EC-4216, Type-2)		

Condition			Suggested Contingency measures		
Early season drought (delayed onset)	**Major Farming situation[a]**	**Normal Crop / Cropping system[b]**	**Change in crop / cropping system including variety**	**Agronomic measures**	**Remarks on Implementation**
Delay by 8 weeks **(15th to 30th August)*** **33rd & 34th SMW**	**High rainfall Sandy loam soils Sub-Tropical region**	Early sown toria crop	Keep fallow for subsequent cultivation of *Toria* (local or RSPT-1).	Residual moisture of receding monsoon rains should be conserved in-situ through tillage practice •Ploughing/Sowing across the slope •Compartmental bunding is done to conserve the water Residual moisture of receding monsoon rains should be conserved in-situ through tillage	
		Mixed fodder	Maize/Bajra/Jowar + Cowpea (for fodder)		
		Green gram/ black gram	For green manuring purposes		

				practice	

Jammu region

The J& K state comprises of different regions like Jammu region, Kashmir region and leh & ladakh region. Each region has various agroclimatic zones and in particular to Jammu region consists of following zones**:**

I. Temperate
II. Intermediate
III. Sub-tropical

Temperate	Doda, Poonch Rajouri, part of Kathua (Pir-Panchal range) Ramban, Kistwar	**Maize**: Sowing is accomplished during the **second fortnight of April**. Moisture received from local rains during **April**.
Intermediate (2000-4000 ft)	Part of Rajouri, Udampur, Part of Reasi, part of Kathua	**Maize**: Sowing accomplished in **May**. Moisture received from local rains during month of **May**.
Sub-tropical (below 2000 ft)	Jammu, Samba, Part of Kathua, Reasi, part of Rajouri	**Maize**: Sowing is accomplished in **June**, soon after receipt of pre-monsoon which is received during the **last week of June**.

- Under temperate and intermediate region sowing of *kharif* crop done on the basis of melting of snow, provided sufficient moisture in the soil.
- Under intermediate region enough rainfall for sowing of *kharif* crop during summer months due to local factors

General agronomic practices to be adopted for different crops under various agroclimatic conditions are as follows:

- **Maize + Rajmash** **Nitrogen** : **P_2O_5** : **K_2O**
  60 40 20 kg/ha
  (Delay in rain) 45 30 15 kg/ha (25% reduction)

- **Maize + Cowpea** 30 30 15 kg/ha (50% reduction in N)
  (Since Cowpea is leguminous crop, there would be a reduction of N by 50%. However, reduction of P_2O_5 and K_2O would remain as earlier i.e. 25%)

- **Rice** (Delay onset)
  1) Seedling number/hill should be increased (Normal: 2, Increased 3 to 4)
  2) Spacing should be closer (Normal: 20 x 20 cm, Closer 15 x 15 cm)
  3) Increase the dose of fertilizer by 25%.
  4) Minimum 5t/ha (optimum: 10-15 t/ha) organic manure should be applied.
  5) Rainfed rice: a) Direct seeding, b) Higher seed rate, c) Weed management.

- **Maize** (Delay onset)
  1) Intercropping of maize with legume (e.g. cowpea, or mash, or moong)
  2) Sowing across the slope i.e. adoption of ridge and furrow configuration.
  3) Integrated weed management (IWM): Atrazin @ 1 kg a. i./ha (pre-emergence) + One hand-weeding at 3 week after sowing + earthing-up at 6 WAS.

- **Rice**

	Temperate	**Intermediate**	**Sub-tropical**
Rajouri	Irrigated rice (K-39, K-448, China-1039, Giza-14)	Irrigated rice (Giza-14, K-39, K-343, China-1039)	Irrigated rice (Giza-14, K-39, K-343, China-1039)
Ramban	Irrigated rice	Irrigated rice	Irrigated rice
Doda	Irrigated rice	Irrigated rice	-------
Udhampur	Rainfed rice	Rainfed rice	Rainfed rice
Poonch			
Reasi	Rainfed rice (K-373)	-----	Rainfed rice (PC-19)