

**State: Jammu and Kashmir**

**Agriculture Contingency Plan for District: Samba**

<b>1.0 District Agriculture profile*</b>			
<b>1.1</b>	<b>Agro-Climatic/Ecological Zone</b>		
	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)	
	List all the districts falling under the NARP Zone* (*>50% area falling in the zone)	Jammu, Kathua, Udhampur	
	Geographic coordinates of district headquarters headquarters	Latitude	Longitude
		32 <sup>0</sup> .55 N	75 <sup>0</sup> .11 E
		Altitude	348 m AMSL
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS	Pulses Research Sub Station, Samba	
	Mention the KVK located in the district with full address	KVK Samba	
	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 (specify week and month)	Normal Cessation (specify week and month)
	SW monsoon (June-Sep):	866.0	34	4 <sup>th</sup> week of June	3 <sup>rd</sup> week of September
	NE Monsoon(Oct-Dec):	62.9	4		
	Winter (Jan- February)	97.3	9	-	-
	Summer (March-May)	130.3	7	-	-
	Annual	1156.5	54	-	-

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. Clayey loam		
	2. Sandy loam		
1.5	Agricultural land use	Area ('000 ha)	Cropping intensity %
	Net sown area	28464	211
	Area sown more than once	-	
	Gross cropped area	60262	

1.6	Irrigation	Area ('000 ha)

	Net irrigated area	7507		
	Gross irrigated area			
	Rainfed area			
	<b>Sources of Irrigation</b>	Number	Area ('000 ha)	Percentage of total irrigated area
	Canals		6292	
	Tanks			
	Open wells		1113	
	Bore wells	25		
	Lift irrigation schemes			
	Micro-irrigation			
	Other sources (please specify)		102	
	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	10.85	-	-	-	-	-	-	-	
Maize	-	-	-	-	4882	-	-	-	
Wheat	-	-	-	-	30.03	-	-	-	
Millets	-	-	-	-	5.79	-	-	-	
Pulses	-	-	-	-	2.81	-	-	-	

	Horticulture crops – Fruits	Area ('000 ha)		
		Total	Irrigated	Rainfed
	Citrus			1640 ha
	Mango			950 ha
	Ber			3368 ha
	Guava			417 ha
	Horticulture crops – Vegetables	-	-	-

	<b>Medicinal and Aromatic crops</b>	-	-	-
	<b>Plantation crops</b>	-	-	-
	<b>Fodder crops</b>	-	-	-
	<b>Total fodder crop area</b>	<b>3.750</b>		
	<b>Grazing land, reserve areas etc</b>	<b>8218 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 (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	0.095	0.582	0.953
	Improved / Crossbred cattle			

	Buffaloes (local low yielding)	0.039	0.314	0.516			
	Improved Buffaloes						
	Goat			2.095			
	Sheep			2.795			
	Pig			0.0006			
	Mithun						
	Yak						
	Others (Horse, mule, donkey etc., specify)			0.0918; 0.0245			
	Commercial dairy farms (Number)						
<b>1.9</b>	<b>Poultry</b>	<b>No. of farms</b>	<b>Total No. of birds ( lakhs)</b>				
	Commercial		1.071				
	Backyard						
<b>1.10</b>	<b>Fisheries</b> (Data source: Chief Planning Officer)						
	<b>A. Capture</b>						
	<b>i) Marine</b> (Data Source: Fisheries Department)	<b>No. of fishermen</b> <b>209 (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</b> (Data Source: Fisheries Department)	<b>No. Farmer owned ponds</b>		<b>No. of Reservoirs</b>		<b>No. of village tanks</b>	
	<b>B. Culture</b>						
			<b>Water Spread Area (ha)</b>	<b>Yield (t/ha)</b>	<b>Production ('000 tons)</b>		
	<b>i) Brackish water</b> (Data Source: MPEDA/ Fisheries Department)				2700qtls		
	<b>ii) Fresh water</b> (Data Source: Fisheries Department)						

	<b>Others</b>			
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**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)	
<b>Major Field crops (Crops to be identified based on total acreage)</b>										
	Rice	203.55	18.75q/ha	-						
	Maize	66.50	13.62q/ha	-						
	Wheat	522.53	17.39q/ha	-						
	Millets	34.57		-						
	Pulses	20.05		-						
<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	Rice	Moong/Mash	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 (SAMBA) Normal onset & Withdrawal of monsoon: 27<sup>th</sup> June ± 10 days & 21<sup>st</sup> Sept. ± 7 days

Condition			Suggested Contingency measures		
Early season drought (delayed onset)	Major Farming situation	Normal Crop / Cropping system	Change in crop / cropping system <sup>c</sup> including variety	Agronomic measures	Remarks on Implementation
Delay by 2 weeks	Medium rainfall	Maize (Hybrid:	<ul style="list-style-type: none"> <li>➤ Sole Maize</li> <li>➤ Intercropping of <b>maize</b> (Hybrid:</li> </ul>	<ul style="list-style-type: none"> <li>➤ Dry sowing of maize can be followed, so that after getting rainfall, it will germinate.</li> </ul>	



<p>(5<sup>th</sup> to 15<sup>th</sup> July)*</p> <p>27<sup>th</sup> &amp; 28<sup>th</sup> SMW</p>	<p><b>Sandy loam soils Sub-Tropical region</b></p>	<p>GS-2, Kanchan 517)</p>	<p>GS-2, Kanchan-517) + <b>cowpea</b> (C-152, PS-42, Culture-1).</p> <ul style="list-style-type: none"> <li>➤ Intercropping of <b>maize</b> (local) + <b>cowpea</b> (C-152, PS-42, Culture-1).</li> </ul>	<ul style="list-style-type: none"> <li>➤ Apply fertilizer by 'Pora' method.</li> <li>➤ Amount of fertilizer N is to be reduced by 50% and P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O both is to be reduced by 25%.</li> <li>➤ Reduce the inter-row distance from 75 to 60 cm and sow by 'Kera' method to facilitate hoeing/weeding.</li> <li>➤ Maize : Cowpea = 8 : 1</li> <li>➤ Integrated weed management: Atrazin @ 1 kg a.i./ha (pre-emergence) + one hand-weeding at 3 WAS, and earthing-up at 6 WAS.</li> </ul>	
		<p>Mixed fodder (Maize+ cowpea+ cluster bean)- Oilseed (Rabi season)</p>	<ul style="list-style-type: none"> <li>➤ Mixed fodder of <b>maize</b> (African tall) + <b>cowpea</b> (EC 4216, Type-2)/ <b>cluster bean</b> (Ageta-Guara-III).</li> <li>➤ <i>Toria</i> may be taken in the left over area within first fortnight of September.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Inoculate seeds of cowpea with '<i>rhizobium</i>' culture.</li> <li>➤ Perform weeding.</li> </ul>	
		<p><b>Green gram/black gram</b></p>	<ul style="list-style-type: none"> <li>➤ Up to 10 July, intercropping of <b>maize</b> (GS-2, Kanchan-517) + <b>green gram</b> (PDM-54, ML-131, ML-818) / <b>black gram</b> (Pant U-19, Uttara)</li> <li>➤ Beyond 10 July and up to 15 July, <b>maize</b> (local) + <b>green gram</b> / <b>black gram</b>.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Maize: green gram / black gram in row ratio of 1 : 1 at 30 cm spacing.</li> <li>➤ One row of pulse in between two rows of maize.</li> <li>➤ Inoculate the seed of black gram/green gram with <i>Rhizobium</i> culture.</li> </ul>	
		<p><b>Bajra</b> (Hybrid: MHB-110, MH-179)</p>	<ul style="list-style-type: none"> <li>➤ Intercropping of <b>bajra</b> (Composite: WCC-75, I-CMS-7703) + <b>cowpea</b> (C-152, PS-42, Culture-1) / <b>urd</b> (Pant U-19, Uttara) / <b>moong</b> (PDM-54, ML-131, ML-818).</li> <li>➤ With anticipation of further delay in rain, nursery of bajra may be</li> </ul>	<ul style="list-style-type: none"> <li>➤ One row of intercrop in between two rows of bajra.</li> <li>➤ Treat the seed of bajra with Metalaxyl 35 SD @ 3g/kg seed.</li> </ul>	

			raised.		
		<b>Sesame</b>	<ul style="list-style-type: none"> <li>➤ Intercropping of <b>sesame</b> (Punjab Til-1) + <b>black gram</b> (Pant U-19, Uttara).</li> <li>➤ Intercropping of <b>groundnut</b> (short duration) + <b>black gram</b> (Pant U-19, Uttara) may be taken into account.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Sesame and black gram should be intercropped with 1 : 1 ratio by following '<i>Kera</i>' method of sowing.</li> </ul>	

Condition	Major Farming situation	Normal Crop / Cropping system	Suggested Contingency measures		
			Change in crop / cropping system including variety	Agronomic measures	Remarks on Implementation
<b>Early season drought (delayed onset)</b>  <b>Delay by 4 weeks</b>  <b>( 16<sup>th</sup> to 31<sup>st</sup> July)*</b>  <b>29<sup>th</sup> &amp; 30<sup>th</sup> SMW</b>	<b>Medium rainfall Sandy loam soils Sub-Tropical region</b>	<b>Maize</b> (Hybrid: GS-2, Kanchan 517)	<ul style="list-style-type: none"> <li>➤ Late sown maize</li> <li>➤ Maize + Cowpea for fodder purpose.</li> </ul>	Sowing of maize should be done on raised bed method for grain yield	
		<b>Maize</b> (fodder)	<ul style="list-style-type: none"> <li>➤ Maize (African tall) + cowpea (EC-4216, Type-2)</li> <li>➤ Bajra (WCC-75, ICMS-7703) + cowpea (EC-4216, Type-2)</li> <li>➤ Jowar + cowpea (EC-4216, Type-2)</li> <li>➤ As such, the land may be utilized for succeeding Toria (RSPT-1, RSPT-2) during 1<sup>st</sup> week of September.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Package of practices of SKUAST-Jammu.</li> </ul>	
		<b>Green gram/black gram</b>	<ul style="list-style-type: none"> <li>➤ Sole crop of pulses comprising green gram (ML-131, PS-7, PS-16), or black gram (Pant U-19, Uttara) up to 21st July.</li> <li>➤ Beyond 21<sup>st</sup> July, use local cultivars of <b>green gram</b> or <b>black gram</b>.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Adopt '<b>bed &amp; furrow</b>' system for sowing of pulses.</li> <li>➤ Inoculate the seed of green gram/black gram with <i>Rhizobium</i> culture.</li> <li>➤ Reduce the dose of N by 50%.</li> <li>➤ Treat the seed with Captan or</li> </ul>	

			Thiram @ 3 g/kg seed.	
		<b>Bajra</b>	<ul style="list-style-type: none"> <li>➤ Instead of direct sowing, transplant the bajra from nursery.</li> <li>➤ <b>Intercropping: Bajra + cowpea / urd / moong</b></li> </ul>	<ul style="list-style-type: none"> <li>➤ 3 weeks old nursery of bajra may be transplanted.</li> </ul>
		<b>Sesame</b>	<ul style="list-style-type: none"> <li>➤ Intercropping of <b>sesame</b> (Punjab Til-1) + <b>black gram</b> (Local)</li> </ul>	<ul style="list-style-type: none"> <li>➤ Sesame and black gram should be intercropped with 1 : 1 ratio by following 'Kera' method of sowing.</li> </ul>

Condition	Major Farming situation	Normal Crop / Cropping system	Suggested Contingency measures		
			Change in crop / cropping system including variety	Agronomic measures	Remarks on Implementation
Early season drought (delayed onset)  Delay by 6 weeks  ( 1 <sup>st</sup> to 14 <sup>th</sup> August)*  31 <sup>st</sup> & 32 <sup>nd</sup> SMW	Medium rainfall Sandy loam soils Sub-Tropical region	<b>Maize</b> (Hybrid: GS-2, Kanchan 517)	<ul style="list-style-type: none"> <li>➤ Maize for fodder purpose.</li> <li>➤ Maize + Cowpea for fodder purpose.</li> </ul>		
		<b>Maize</b> (fodder)	<ul style="list-style-type: none"> <li>➤ Maize (African tall) + cowpea (EC-4216, Type-2)</li> <li>➤ Bajra (WCC-75, ICMS-7703) + cowpea (EC-4216, Type-2)</li> <li>➤ Jowar + cowpea (EC-4216, Type-2)</li> <li>➤ As such, the land may be utilized for succeeding <i>Toria</i> (RSPT-1, RSPT-2) during 1<sup>st</sup> week of September.</li> </ul>		
		<b>Green gram/ black gram</b>	<ul style="list-style-type: none"> <li>➤ <b>Green gram / black gram</b> (Local) for fodder purposes.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Inoculate the seed of green gram / black gram with <i>Rhizobium</i> culture.</li> <li>➤ Reduce the dose of N by 50%.</li> </ul>	
		<b>Bajra</b>	<ul style="list-style-type: none"> <li>➤ Bajra (WCC-75, ICMS-7703) + cowpea (EC-4216, Type-2) for fodder.</li> </ul>	<ul style="list-style-type: none"> <li>➤ As per package of practice of SKUAST-J.</li> </ul>	

		<b>Green gram/ Sunhup</b>	➤ For green manuring.	➤ Ploughing at peak vegetative period in order to conserve the moisture for succeeding crop ( <i>rabi</i> oilseed)	
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<b>Condition</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 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>	<b>Medium rainfall Sandy loam soils Sub-Tropical region</b>	<b>Maize</b>	➤ Keep fallow for subsequent cultivation of <i>Toria</i> (local or RSPT-1).	<ul style="list-style-type: none"> <li>• Preparatory tillage by ploughing the fields across the slope.</li> <li>• Plough once with soil turning plough (<i>Tawi plough</i>) followed by twice with soil stirring plough (<i>deshi plough</i>) and at last planking for maximum conservation of soil moisture.</li> </ul>	
		<b>Maize (fodder)</b>	➤ Maize/Bajra/Jowar + Cowpea (for fodder)		
		<b>Green gram/ Black gram</b>	➤ Keep fallow for succeeding <i>Rabi</i> crop.	➤ Tillage operation for conserving soil moisture.	
		<b>Bajra</b>	➤ Keep fallow for succeeding <i>Rabi</i> crop.	➤ As per package of practice of SKUAST-J.	
		<b>Sesame</b>	➤ Black/green gram for fodder.	➤	