

State: Jammu and Kashmir

Agriculture Contingency Plan for District: Kulgam

1.0 District Agriculture profile				
1.1	Agro-Climatic/Ecological Zone			
	Agro Ecological Sub Region (ICAR)	Northern Western Himalayan Region		
	Agro-Climatic Zone (Planning Commission)	Cold Humid		
	Agro Climatic Zone (NARP)	Humid Western Himalayan Region		
	List all the districts falling under the NARP Zone* (*>50% area falling in the zone)	Srinagar,Kupwara,Ganderbal,Shopian,Bandipora,Budgam,Pulwama,Anantnag,Baramulla		
	Geographic coordinates of district headquarters	Latitude	Longitude	Altitude
		33° 39' 0" N	75° 01' 0" E	5685 ft
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS	RRS Kudwani		
	Mention the KVK located in the district with address	Pombai(kulgam)		
Name and address of the nearest Agromet Field Unit (AMFU, IMD) for agro-advisories in the Zone	AMFU, Srinagar			

1.2	Rainfall	Normal RF(mm)	Normal Rainy days (number)	Normal Onset (specify week and month)	Normal Cessation (specify week and month)
	SW monsoon				
	NE Monsoon				

	Annual	956.1	80	-	-
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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)	47.642	30.683	0.190	5.353	3.697	2.751	1.219	3.541	0.129	0.079

1.4	Major Soils (common names like red sandy loam deep soils (etc.,))*	Area ('000 ha)	Percent (%) of total
	Clay Loam	15.845	40
	Sandy Loam	21.446	60
	Others (specify)		

1.5	Agricultural land use	Area ('000 ha)	Cropping intensity %
	Net sown area	37.732	156
	Area sown more than once	7.049	
	Gross cropped area	47.642	

1.6	Irrigation	Area ('000 ha)		
	Net irrigated area	20.18		
	Gross irrigated area	26.296		
	Rainfed area	9.159		
	Sources of Irrigation	Number	Area ('000 ha)	Percentage of total irrigated area
	Canals		26.408	100
	Tanks			
	Open wells			

	Bore wells			
	Lift irrigation schemes			
	Micro-irrigation			
	Other sources (please specify)			
	Total Irrigated Area			
	Pump sets	191		
	No. of Tractors	83		
	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 (as per latest figures) (Specify year 2008-09)

1.7	Major field crops cultivated	Area ('000 ha)							Grand total
		<i>Kharif</i>			<i>Rabi</i>			Summer	
		Irrigated	Rainfed	Total	Irrigated	Rainfed	Total		
Paddy	18.291								
Maize		4.507							
Oilseed					4.166				
Vegetables	3.000								

	Pulses		1.170						
	Fodder	0.158							
	Wheat	-	-						

	Horticulture crops - Fruits	Area ('000 ha)		
		Total	Irrigated	Rainfed
	Apple	12.958		
	Apricot	0.119		
	Cherry	0.067		
	Peach	0.116		
	Plum	0.197		
	Walnut, pear	5.591,0.637		
	Horticulture crops - Vegetables			
	Medicinal and Aromatic crops			
	Mulberry Trees	180.000		
	Plantation crops			
	Eg., industrial pulpwood crops etc.			

	Fodder crops			
	Total fodder crop area			
	Grazing land			
	Sericulture etc			
	Others (specify)			

1.8	Livestock	Male ('000)	Female ('000)	Total ('000)		
	Non descriptive Cattle (local low yielding)			105.890		
	Improved cattle			33.810		
	Crossbred cattle					
	Non descriptive Buffaloes (local low yielding)			1.325		
	Descript Buffaloes			0.078		
	Goat			8.757		
	Sheep			43.876		
	Others (Camel, Pig, Yak etc.)					
	Commercial dairy farms (Number)					
1.9	Poultry	No. of farms	Total No. of birds ('000)			
	Commercial					
	Backyard		288.498			
1.10	Fisheries (Data source: Chief Planning Officer)					
	A. Capture					
	i) Marine (Data Source: Fisheries Department)	No. of fishermen	Boats		Nets	
	Mechanized		Non-mechanized	Mechanized (Trawl nets, Gill nets)	Non-mechanized (Shore Seines, Stake & trap nets)	

				090			
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)							
ii) Fresh water (Data Source: Fisheries Department)							
Others							

1.11 Production and Productivity of major crops (Average of last 5 years: 2004, 05, 06, 07, 08; specify years)

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)										
	Paddy	2.250	3000							
	Maize	1.290	1400							
	Oilseed	0.720	1200							
Major Horticultural crops (Crops to be identified based on total acreage)										
	Apple	103.556								
	Apricot	0.799								
	Cherry	0.269								
	Peach	0.777								
	Plum	1.265								
	Walnut	19.690								

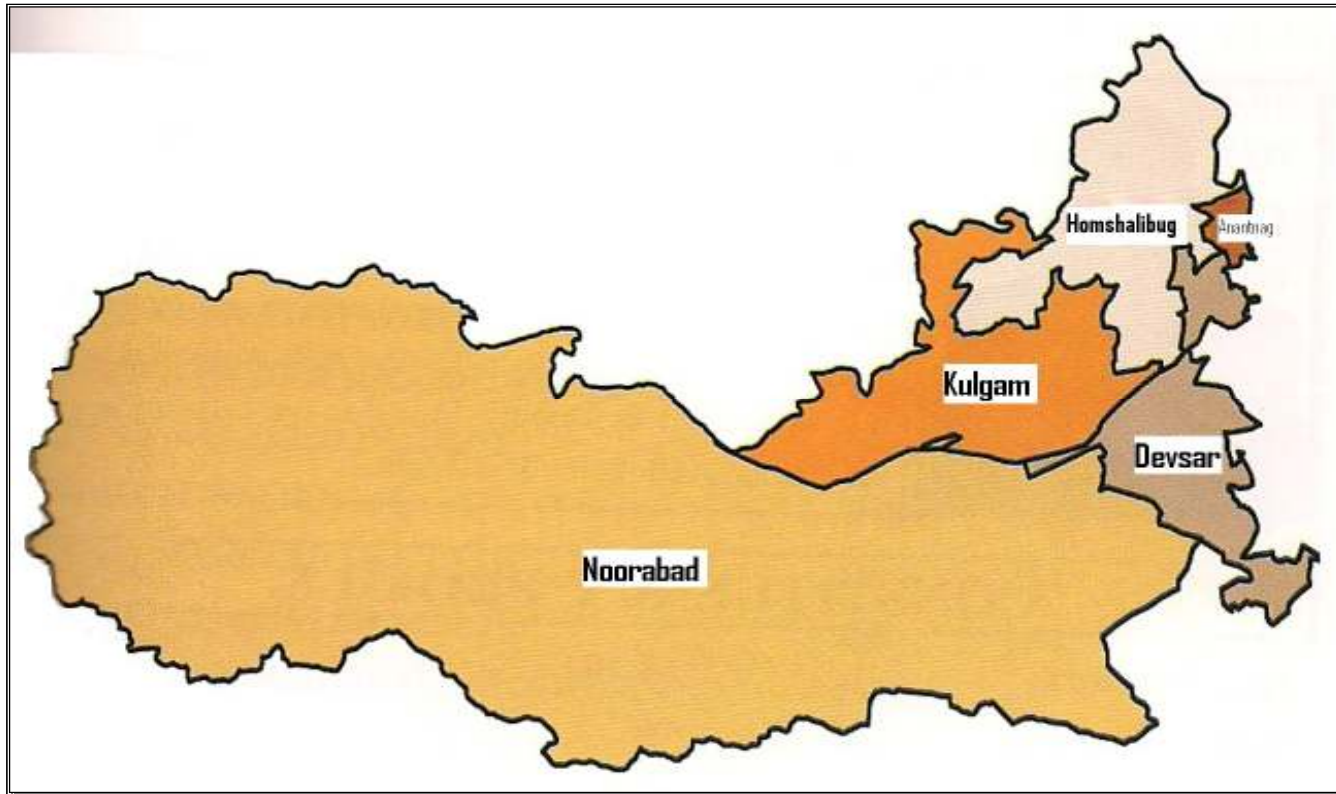
1.12	Sowing window for 5 major field crops (start and end of normal sowing period)	Rice	Maize	Pulses	Oil Seed
	Kharif- Rainfed	-	2 nd week of april- 3 rd week of may -	2 nd week of May – 2 nd week of June	-
	Kharif-Irrigated	3 rd week of April- 2 nd week of May	1st april-25 may	2 nd week of May – 2 nd week of June	-
	Rabi- Rainfed				1 st week of October- 2 nd week of October

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			√
	Pests and disease outbreak (specify)		√	
	Others (specify)			√

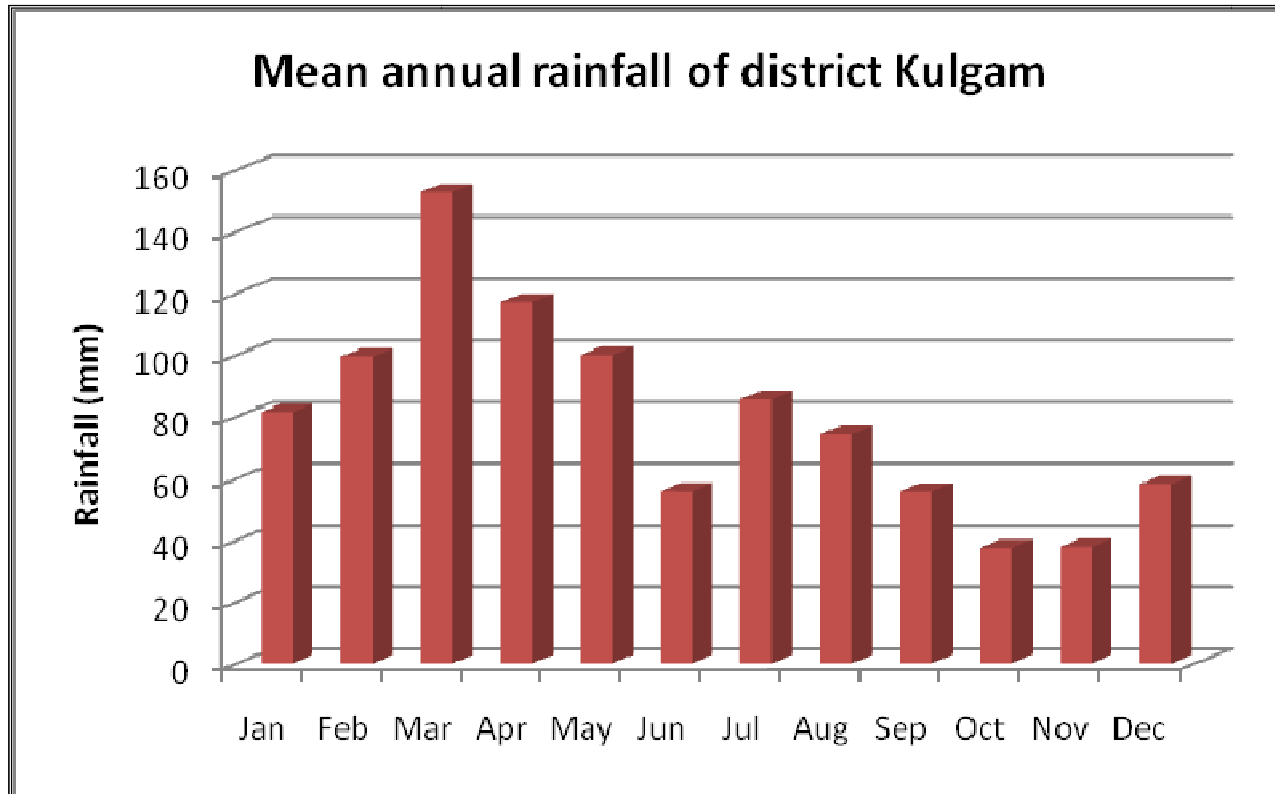
1.14	Include Digital maps of the district for		
		Location map of district within State as Annexure I	Enclosed: Yes
		Mean annual rainfall as Annexure 2	Enclosed: Yes
		Soil map as Annexure 3	Enclosed: N o

Annexure I

Map of Kulgam District



Annexure II



2.0 Strategies for weather related contingenc

2.1 Drought - Not Applicable

2.1.1 Rained situation

Condition	Major Farming situation ^a	Normal Crop / Cropping system ^b	Suggested Contingency measures		
			Change in crop / cropping system ^c including variety	Agronomic measures ^d	Remarks on Implementation ^e
Early season drought (delayed onset) Delayed by two weeks 3 rd week of January	Pleistocene medium rainfall precipitation	Maize + Greengram/ Maize + Rajmash Maize: C ₆ , C ₈ Greengram: Shalimar moong-1 Rajmash: Canadian red	No change is recommended		
		Oats (sabzar)			
	Shallow soils high rainfall (high altitude)	Maize / Maize + Rajmash Maize:C-15, SKG-1, SKG-2, Shalimar maize hybrid-1 Rajmash: Canadian red	No change is recommended		

Early season drought (delayed onset)	Major Farming situation ^a	Normal Crop / Cropping system ^b	Change in crop / cropping system ^c including variety	Agronomic measures ^d	Remarks on Implementation ^e
		Oats (sabzar)			

	Shallow soils high rainfall (high altitude)	Maize / Maize + Rajmash Maize:C-15, SKG-1, SKG-2, Shalimar maize hybrid-1 Rajmash: Canadian red	No change is recommended		
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Condition	Major Farming situation ^a	Normal Crop / Cropping system ^b	Suggested Contingency measures		
			Change in crop / cropping system ^c including variety	Agronomic measures ^d	Remarks on Implementation ^e
Delayed by 8 weeks 1 st week of March	Pleistocene medium rainfall precipitation	Maize + Greengram/ Maize + Rajmash Maize: C ₆ , C ₈ Greengram: Shalimar moong-1 Rajmash: Canadian red	Maize(local)-Fallow Maize(local) + Beans-Fallow Maize(local)+Greengram/Cow pea-fallow	<ul style="list-style-type: none"> • Use local varieties • Follow water harvesting • Increase sowing depth • Early sowing • Use mulches • Increase quantity of organic manure 	
		Oats (sabzar)	Maize-local Beans-canadian red Cowpea local		
	Shallow soils high rainfall (high altitude)	Maize / Maize + Rajmash Maize:C-15, SKG-1, SKG-2, Shalimar maize hybrid-1 Rajmash: Canadian red	Maize(local)-Fallow Maize(local)+beans-fallow Maize(local)+Greengram/cow pea-fallow		

Condition	Major Farming situation ^a	Normal Crop/cropping system ^b	Suggested Contingency measures		
			Change in crop/cropping system ^c	Agronomic measures ^d	Remarks on Implementation ^e
Early season drought (delayed onset)	Pleistocene soil medium rainfall precipitation	Maize + Greengram/ Maize + Rajmash Maize: C ₆ , C ₈ Greengram: Shalimar moong-1 Rajmash: Canadian red	Maize(local)-Fallow Maize(local) + Beans-Fallow Maize(local)+Greengram/Cowpea-fallow	<ul style="list-style-type: none"> • Use local varieties • Follow water harvesting • Increase sowing depth • Early sowing • Use mulches • Increase quantity of organic manure 	
		Oats (sabzar)	Maize-local Beans-canadian red Cowpea- local		
	Shallow soils high rainfall (high altitude)	Maize / Maize + Rajmash Maize:C-15, SKG-1, SKG-2, Shalimar maize hybrid-1 Rajmash: Canadian red	Maize(local)-Fallow Maize(local)+beans-fallow Maize(local)+Greengram/cowpea-fallow		

Condition	Major Farming situation ^a	Normal Crop/cropping system ^b	Suggested Contingency measures		
			Crop management ^c	Soil nutrient & moisture conservation measures ^d	Remarks on Implementation ^e
Early season drought (Normal onset)					
Normal onset followed by 20 day dry spell	Pleistocene soil medium rainfall precipitation	Maize + Rajmash a. Maize + Moong b. Maize + Rajmash Maize:- C₆, C₈ Rajmash:- Canadian red Moong:- Shalimar moong-1	<ul style="list-style-type: none"> • Thinning and gap filling • Reseeding /gap filling 	<ul style="list-style-type: none"> • Tillage mulching 	

		a.Oats Oats-sabzar			
	Shallow soils high rainfall(high altitude)	Maize sole a.Maize b.M aize + Rajmash Maize-C15,SKG1 SKG2,Shalimar maize hybrid1 Rajmash:- Canadian red	Reseeding if germination fails		

Condition	Major Farming situation ^a	Normal Crop/cropping system ^b	Suggested Contingency measures		
			Crop management ^c	Soil nutrient & moisture conservation measures ^d	Remarks on Implementation ^e
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period)					
	Pleistocene soil medium rainfall precipitation	Maize + Rajmash a. Maize + Moong b.Maize + Rajmash Maize:- C₆, C₈ Rajmash:- Canadian red Moong:- Shalimar moong-1 Oats-sabzar	Life saving irrigation Weeding & mulching Delay application of N dose	Prepare furrow across the slope Spray urea	
	Shallow soils high rainfall(high altitude)	M aize sole a.Maize b.M aize + Rajmash Maize-C15,SKG1 SKG2, Shalimar maize hybrid1 Rajmash:- Canadian red			

Condition	Major Farming situation ^a	Normal Crop/cropping system ^b	Suggested Contingency measures		
			Crop management ^c	Soil nutrient & moisture conservation measures ^d	Remarks on Implementation ^e
Mid season drought (long dry spell)	Pleistocene soil medium rainfall precipitation	Cropping System 1 Maize + Rajmash a. Maize + Moong b. Maize + Rajmash Maize:- C₆, C₈ Rajmash:- Canadian red Moong:- Shalimar moong-1	Life saving irrigation Tillage mulch Weeding Organic mulch	Spray micro nutrients and urea and potash as Kcl mulching	
	Shallow soils high rainfall (high altitude)	Maize sole a. Maize b. Maize + Rajmash Maize-C15, SKG1 SKG2, Shalimar maize hybrid1 Rajmash:- Canadian red	Thing of plant stand to rationalize available moisture		

Condition	Major Farming situation ^a	Normal Crop/cropping system ^b	Suggested Contingency measures		
			Crop management ^c	Rabi Crop planning ^d	Remarks on Implementation ^e
Terminal drought (Early withdrawal of monsoon)/ western disturbance	Pleistocene soil medium rainfall precipitation	Cropping System 1 Maize + Rajmash a. Maize + Moong b. Maize + Rajmash Maize:- C₆, C₈ Rajmash:- Canadian red Moong:- Shalimar moong-1	Life saving irrigation from water storages	Lentil, brown sarson wheat vetch to be sown in the month of October followed by pre-sowing irrigation	
		Oats-sabzar	Harvest moong and beans for vegetable purpose Harvest maize for		

	Shallow soils high rainfall(high altitude)	Maize sole a.Maize b.M aize + Rajmash Maize-C15,SKG1 SKG2, Shalimar maize hybrid1 Rajmash:- Canadian red	fodder purpose and save excessive biomass as hay		
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2.1.2 Drought - Irrigated situation

Condition	Major Farming situation ^f	Normal Crop/cropping system ^g	Suggested Contingency measures		
			Change in crop/cropping system ^h	Agronomic measures ⁱ	Remarks on Implementation ⁱ
Delayed release of water in canals due to low rainfall/snowfall	low land. snow melt Streams.Alluvial soils	a.Rice-brown sarson	Dealyed released of water Is not situation as at early stages whatever snow is available water is releaaed	<ul style="list-style-type: none"> • Pre-sowing irrigation • Proper puddling in rice fields • Irrigate rice after disappearance of ponded water • Pre-sowing irrigation • Proper puddling in rice fields • Irrigate rice after disappearance of ponded water. • Plastering of bunds 	
		b.Rice-fodder oats			
		c.Rice- wheat			
	Tail ends of irrigated area.	a. Rice-brown sarson	Not required		
		b. Rice-fodder oats			
		c. Rice- wheat			
.Mid to high altitude Pleistocene soils	a. Rice-brown sarson				
	b.Rice-fodder oats				
	c.Rice- wheat				
Limited release of water in canals due to low rainfall/snowfall	low land. snow melt Streams.Alluvial soils	a.Rice-brown sarson	Maize+beans-brown sarson Maize+beans-oats Maize+moong/cowpea-brown sarson	<ul style="list-style-type: none"> • Pre-sowing irrigation • Plant local varities. • Early sowing recommended • Increase organic manure as per availability 	
		b.Rice-fodder oats			
		c.Rice- wheat			
	Tail ends of irrigated area.	a.Rice-brown sarson b.Rice-fodder oats c.Rice- wheat			

Condition	Suggested Contingency measures					
	Major Farming situation ^f	Normal Crop/cropping system ^g	Change in crop/cropping system ^h	Agronomic measures ⁱ	Remarks on Implementation ^j	
.Mid to high altitude Pleistocene soils			sarson			
			a. Rice-brown sarson			Maize
			b.Rice-fodder oats			Fodder maize
			c.Rice- wheat			MP cherry

Condition	Suggested Contingency measures				
	Major Farming situation ^f	Normal Crop/cropping system ^g	Change in crop/cropping system ^h	Agronomic measures ⁱ	Remarks on Implementation ^j
Non release of water in canals under delayed onset of western disturbance in catchment	low land. snow melt Streams.Alluvial Soils Tail ends of irrigated area. .Mid to high altitude Pleistocene soils	Conditions not applicable			

Condition	Suggested Contingency measures				
	Major Farming situation ^f	Normal Crop/cropping system ^g	Change in crop/cropping system ^h	Agronomic measures ⁱ	Remarks on Implementation ^j
Lack of inflows into tanks due to insufficient /delayed onset of monsoon	Farming Situation	Condition not applicable			
Condition			Suggested Contingency measures		
	Major Farming situation^f	Normal Crop/cropping system^g	Change in crop/cropping system^h	Agronomic measuresⁱ	Remarks on Implementation^j
Insufficient groundwater	Farming Situation	Condition not applicable			

Condition	Suggested Contingency measures				
	Major Farming situation ^f	Normal Crop/cropping system ^g	Change in crop/cropping system ^h	Agonomic measures ⁱ	Remarks on Implementation ^j
recharge due to low rainfall	2) Farming Situation	Condition not applicable			

2.2 Unusual rains (untimely, unseasonal etc) (for both rainfed and irrigated situations)

Condition	Suggested contingency measure			
Continuous high rainfall in a short span leading to water logging	Vegetative stage ^k	Flowering stage ^l	Crop maturity stage ^m	Post harvest ⁿ
Maize+beans	Provide surface drainage along the slope	Provide surface drainage	Drain field. Provide staking if lodging is seen. Harvest around at physiological maturity	Spread crop at dry and safer place
Beans/Moong	do	do	Harvest crop by uprooting Not by picking	do
Fodder maize	do	Harvest crop as and when workable	-	
Rice	Drain excessive water.	Provide drainage and take measures against rice blast(prophylactic measures)		
Horticulture				
Apple	At dormant stage in case of heavy snowfall remove snow from trees In case of trunk craking join splits by nuts and bolts to save trees			
Heavy rainfall with high speed winds in a short span²				
Outbreak of pests and diseases				

due to unseasonal rains		Need based plant protection IPDM for pluses		Safe storage against storage pest and diseases
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2.3 Floods : Not experienced / encountered

Condition	Suggested contingency measure ^o			
	Seedling / nursery stage	Vegetative stage	Reproductive stage	At harvest
Transient water logging/ partial inundation¹				
Rice	NA	-Remove slit from the effected parts of field -Drain water from field	-Staking of lodged plants -Remove slit -Drain water -Prophylactic spray to control diseases	-Drain field -Remove slit -Harvest and take produce to safer place
Continuous submergence for more than 2 days²				
Sea water intrusion³				

2.4 Extreme events: Heat wave / Cold wave/Frost/ Hailstorm /Cyclone : Not experienced / encountered

Extreme event type	Suggested contingency measure ^r			
	Seedling / nursery stage	Vegetative stage	Reproductive stage	At harvest
Heat Wave^p	NA			
Cold wave^q				
Rice	At nursery stage use low polythene tunnel to Grow rice nursery as standard method	Increase water level in the paddy fields	Keep water level up	
Hailstorm				
Cyclone				

2.5 Contingent strategies for Livestock, Poultry & Fisheries

2.5.1 Livestock

	Suggested contingency measures		
	Before the event ^s	During the event	After the event
Drought			
Feed and fodder availability	<ul style="list-style-type: none"> - Necessary arrangements to grow fodder on bunds/orchards and irrigated area as need based - Use excessive fodder for making hay and silage 	<ul style="list-style-type: none"> -Keep animals under shade -Use urea molasses treated roughage -Use feed blocks prepared from crop residue And apple pomace -Ensure availability of mineral mixture 	
Drinking water	Ensure storage of drinking water in storage tanks	Ensure storage of water	
Health and disease management	Arrangement and preparedness with required medicine stock	Vaccination for foot and mouth disease and other required dosage and vaccination if not done earlier	Culling sick and unproductive livestock.
Floods			
Feed and fodder availability	-	<ul style="list-style-type: none"> Take animals to safer places -Use feed blocks prepared from crop residue And apple pomace -Spread wet fodder at safer places to dry 	
Drinking water			
Health and disease management			
Cyclone			
Feed and fodder availability			
Drinking water			

Health and disease management			
Heat wave and cold wave			
Shelter/environment management	Provide heating and proper ventilation	Ensure live stock is not subjected to direct cold	
Health and disease management			

^s based on forewarning wherever available

2.5.2 Poultry

	Suggested contingency measures			Convergence/linkages with ongoing programs, if any
	Before the event ^a	During the event	After the event	
Drought				
Shortage of feed ingredients	Ensure stock of feed	Utilisse damaged food grains Utilise stored feed	Culling of affected birds	
Drinking water	Storage in water reservoirs	Use stored water	-	
Health and disease management	Preparedness and arrangement of vaccination	Mass vaccination	Culling of diseased birds	
Floods				
Shortage of feed ingredients				
Drinking water				
Health and disease management				

Cyclone				
Shortage of feed ingredients				
Drinking water				
Health and disease management				
Heat wave and cold wave				
Shelter/environment management				
Health and disease management				

^a based on forewarning wherever available

2.5.3 Fisheries/ Aquaculture

	Suggested contingency measures		
	Before the event ^a	During the event	After the event
1) Drought			
A. Capture	Prepare additional water reservoirs and exigency ponds	Protect brood stock by making deep trenches in the middle of ponds. Sale of additional stock Provide aeration Stop feeding/restrict feeding Give chilling treatment	-
Marine			
Inland			
(i) Shallow water depth due to insufficient rains/inflow			
(ii) Changes in water quality			

(iii) Any other			
B. Aquaculture			
(i) Shallow water in ponds due to insufficient rains/inflow			
(ii) Impact of salt load build up in ponds / change in water quality			
(iii) Any other			
2) Floods			
A. Capture			
Marine			
Inland			
(i) Average compensation paid due to loss of human life			
(ii) No. of boats / nets/damaged			
(iii) No.of houses damaged			
(iv) Loss of stock			
(v) Changes in water quality			
(vi) Health and diseases			
B. Aquaculture			
(i) Inundation with flood water			
(ii) Water contamination and changes in water quality			
(iii) Health and diseases			
(iv) Loss of stock and inputs (feed, chemicals etc)			
(v) Infrastructure damage (pumps, aerators, huts etc)			

(vi) Any other			
3. Cyclone / Tsunami			
A. Capture			
Marine			
(i) Average compensation paid due to loss of fishermen lives			
(ii) Avg. no. of boats / nets/damaged			
(iii) Avg. no. of houses damaged			
Inland			
B. Aquaculture			
(i) Overflow / flooding of ponds			
(ii) Changes in water quality (fresh water / brackish water ratio)			
(iii) Health and diseases			
(iv) Loss of stock and inputs (feed, chemicals etc)			
(v) Infrastructure damage (pumps, aerators, shelters/huts etc)			
(vi) Any other			
4. Heat wave and cold wave			
A. Capture			
Marine			
Inland			
B. Aquaculture			
(i) Changes in pond environment			

(water quality)			
(ii) Health and Disease management			
(iii) Any other			

^a based on forewarning wherever available