

State: GUJARAT

Agriculture Contingency Plan for District: DANG

1.0 District Agriculture profile					
1.1	Agro-Climatic/Ecological Zone				
	Agro Ecological Sub Region (ICAR)		Western Ghats And Coastal Plain, Hot Humi-per humid eco region (19): North Sahyadris and Konkan Coast, hot, humid eco-subregion(19.1)		
	Agro-Climatic Zone (Planning Commission)		Gujarat plains and hills region (XIII)		
	Agro Climatic Zone (NARP)		South Gujarat Heavy Rainfall area (GJ-1)		
	List all the districts or part thereof falling under the NARP Zone		Navsari, Valsad, Dang, Tapi		
	Geographic coordinates of district headquarters		Latitude	Longitude	Altitude
			20 ⁰ 39'21.50" N	73 ⁰ 29'73.51" E	105 to 1317 mtrs. MSL
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS		Navsari Agricultural University, Navsari		
Mention the KVK located in the district		Waghai in Dang district			
1.2	Rainfall	Normal RF(mm)	Normal Rainy days (number)	Normal Onset	Normal Cessation
	SW monsoon (June-Sep)	2801.8	74.3	1 st week of June	4 th week of September
	NE Monsoon(Oct-Dec)	--	--	-	-
	Winter (Jan- March)	--	--	-	-
	Summer (Apr-May)	--	--	-	-
	Annual	2801.8	74.3	-	-

(Source :District Panchayat reports, reports of Agriculture department)

1.3	Land use pattern of the district (latest statistics)	Geographical area	Cultivable area	Forest area	Land under non-agricultural use	Permanent pastures	wasteland	Land under Misc. tree crops and groves	Barren and uncultivable land	Current fallows	Other fallows
	Area ('000 ha)	171.306	55.743	92.085	6.330	0.586	1.625	6.421	6.548	0.617	1.346

(Source :District Panchayat reports, reports of Agriculture department)

1.4	Major Soils (common names like red sandy loam deep soils (etc.,))*	Area ('000 ha)	Percent (%) of total
	Plain Area- Heavy black soils	Not available	Not available
	Hilly Area- Light soil (lateritic and eroded shallow and Clay loam moderately deep shallow soil)	Not available	Not available

1.5	Agricultural land use	Area ('000 ha)	Cropping intensity %
	Net sown area	55.743	142 %
	Area sown more than once	23.421	
	Gross cropped area	79.164	

(Source :District Panchayat reports, reports of Agriculture department)

1.6	Irrigation	Area ('000 ha)
	Net irrigated area	23.421

Gross irrigated area	23.421		
Rain fed area	32.322		
Sources of Irrigation	Number	Area ('000 ha)	Percentage of total irrigated area
Canals	-	-	-
Tanks	-	-	-
Open wells	950	8.540	36.46
Bore wells / Tube well	120	4.360	18.62
Lift irrigation schemes		10.521	44.92
Micro-irrigation			
Other sources (please specify)			
Total Irrigated Area		23.421	100.0
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	3	100	
Wastewater availability and use			
Ground water quality	Good		

*over-exploited: groundwater utilization > 100%; critical: 90-100%; semi-critical: 70-90%; safe: <70%

(Source :District Panchayat reports, reports of Agriculture department)

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		
Gram	0.0	0.0	0.0	18.00	0.0	18.00	0.0	18.00	
Paddy (Transplanting)	0.0	17.06	17.06	0.0	0.0	0.0	0.0	17.06	
Ragi/vari	0.0	17.72	17.72	0.0	0.0	0.0	0.0	15.33	
Blackgram	0.0	4.96	4.96	0.0	0.0	0.0	0.0	4.96	
Groundnut	0.0	2.95	2.95	0.0	0.0	0.0	0.81	3.76	
Horticulture crops									
	Fruit crops	<i>Kharif</i>			<i>Rabi</i>			Summer	Grand total
		Irrigated	Rain fed	Total	Irrigated	Rain fed	Total	Summer	
	Mango	0.0	4.822	4.822	0.0	0.0	0.0	0.0	4.822
	Cashew nut	0.0	1.303	1.303	0.0	0.0	0.0	0.0	1.303
	Custard apple	0.0	0.105	0.105	0.0	0.0	0.0	0.0	0.105
	sapota	0.0	0.027	0.027	0.0	0.0	0.0	0.0	0.027
	Banana	0.0	0.0	0.0	0.024	0.0	0.024	0.0	0.024

Vegetable crops								
Okra	0.0	0.0	0.0	1.247	0.0	1.247	0.0	1.247
Cucurbits	0.0	0.763	0.763	0.0	0.0	0.0	0.0	0.763
Brinjal	0.0	0.623	0.623	0.0	0.0	0.0	0.0	0.623
Onion	0.0	0.0	0.0	0.545	0.0	0.545	0.0	0.545
Tomato	0.0	0.0	0.0	0.347	0.0	0.347	0.0	0.347
Spices & Condiments								
Turmeric	0.0	0.235	0.235	0.0	0.0	0.0	0.0	0.235
Chilli	0.0	0.0	0.0	0.005	0.0	0.005	0.0	0.005
Flower Crops								
Marigold	0.0	0.0	0.0	0.0	0.128	0.128	0.0	0.128
Rose	0.0	0.051	0.0	0.0	0.0	0.0	0.0	0.051
Other Flower crops	0.0	0.0	0.0	0.0	0.014	0.014	0.0	0.014
Medicinal Plants								
Safed musli	0.0	0.017	0.017	0.0	0.0	0.0	0.0	0.017

(Source :District Panchayat reports, reports of Agriculture department)

1.8	Livestock	Male ('000)	Female ('000)	Total ('000)			
	Non descriptive Cattle (local low yielding)	37.646	24.428	60.074			
	Crossbred cattle	1.923	7.937	9.860			
	Non descriptive Buffaloes (local low yielding)	-	-	-			
	Graded Buffaloes	15.747	4.980	20.727			
	Goat	8.409	21.907	30.316			
	Sheep	-	-	-			
	Others (Camel, Pig, Yak etc.)	0.070	0.078	0.148			
Commercial dairy farms (Number)							
1.9	Poultry	No. of farms	Total No. of birds ('000)				
	Commercial	-	1.715				
	Backyard	-	153.727				
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)	
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	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)						
(Source :District Panchayat reports, reports of Agriculture department)							

(Source: District Panchayat reports, reports of Agriculture department)

1.11 Production and Productivity of major crops: As per 1.7

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)										
	Gram	NA	NA	NA	NA	NA	NA	NA	NA	
	Paddy (transplanting)	55.67	3263.38	0.0	0.0	0.0	0.0	55.67	3263.38	
	Ragi/vari	12.53	817.25	0.0	0.0	0.0	0.0	12.53	817.25	
	Black gram	4.14	835.38	0.0	0.0	0.0	0.0	4.14	835.38	
	Ground nut	32.15	1086.98	0.0	0.0	0.0	0.0	32.15	1086.98	
Major Horticultural crops (Crops to be identified based on total acreage)										
Fruit Crops	Mango	-	-	-	-	28.932	6000	28.932	6000	
	Cashew nut	4.601	3531.08	-	-	-	-	4.601	3531.08	
	Custard apple	-	-	0.803	7647.61	-	-	0.803	7647.61	
	Sapota	0.299	11074	-	-	-	-	0.299	11074.07	
	Banana	-	-	0.984	41000	-	-	0.984	41000	
Major Vegetable crops (Crops to be identified based on total acreage)										
Vegetable	Okra	-	-	18.705	15000	-	-	18.705	15000	

crops	Cucurbits	9.232	12099	-	-	-	-	9.232	12099	
	Brinjal	10.591	17000	-	-	-	-	10.591	17000	
	Onion	-	-	21.337	39150.45	-	-	21.337	39150.45	
	Tomato	-	-	7.669	22100	-	-	7.669	22100	
Spices & Condiments (Crops to be identified based on total acreage)										
	Turmeric	5.405	23000	-	-	-	-	5.405	23000	
	Dry Chilli	-	-	0.008	1600	-	-	0.008	1600	
Flower Crops (Crops to be identified based on total acreage)										
	Marigold	-	-	1.126	8796.87	-	-	1.126	8796.87	
	Rose	0.41	8039.21	-	-	-	-	-	-	
	Others	-	-	0.11	7857.14	-	-	0.11	7857.14	
Medicinal & aromatic crops (Crops to be identified based on total acreage)										
	Safed musli	-	-	0.035	2058.82	-	-	35.000	2058	

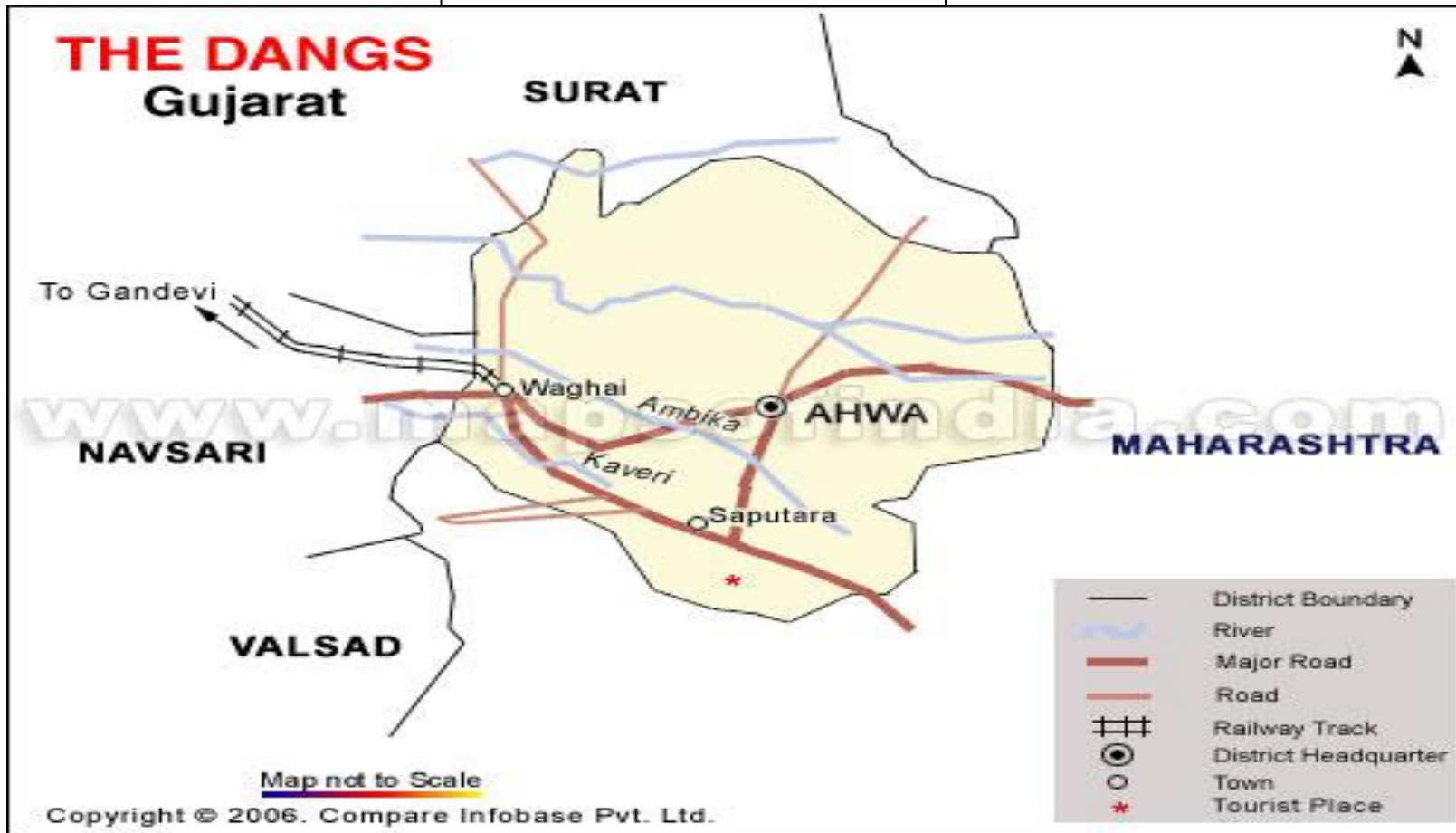
1.12	Sowing window for 5 major field crops (start and end of normal sowing period)	Paddy	Nagli	Pigeon pea	Black gram	Soybean
	Kharif- Rain fed	15 th June to 15 th July	15 th June to 15 th July	15 th June to 15 th July	15 th June to 15 th July	15 th June to 15 th July
	Kharif-Irrigated	15 th June to 15 th July	-	-	-	-
	Rabi- Rain fed	-	-	-	-	-
	Rabi-Irrigated	-	-	-	-	-

(Source :District Panchayat reports, reports of Agriculture department)

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: No

LOCATION MAP OF DANG DISTRICT



2.0 Strategies for weather related contingencies

2.1 Drought

2.1.1 Rain fed situation

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 (3 rd week of June)	Well drain soil (Hilly)	Gram	No Change	Nutrient Spray. sprouted seed/SRI method aerobic rice. Early maturing variety select for all field crops	Supply of seeds through NFSM .Supply of seeds through GSSC
		Paddy (transplanting)			
		Ragi/vari			
		Black gram			
		Ground nut			
	Soil (Plain)	Gram	No Change	Nutrient Spray. sprouted seed/SRI method aerobic rice. Early maturing variety select for all field crops	Supply of seeds through GSSC Supply of seeds through NFSM
		Paddy (transplanting)			
		Ragi/vari			
		Black gram			
		Ground nut			
	Suggested Contingency measures				
Condition	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Early season drought (delayed onset)	Well drain soil (Hilly)	Gram	No Change	In transplanted paddy - sprouted seed/SRI method may adopt. Early maturing variety select for all field crops	<ul style="list-style-type: none"> •GSSC •NSC •RKVY •NHM
		Paddy (transplanting)			
		Ragi/vari			
		Black gram			

		Ground nut			
	Soil (Plain)	Gram	No Change	In transplanted paddy - sprouted seed/SRI method may adopt. Early maturing variety select for all field crops	•GSSC
		Paddy (transplanting)			
		Ragi/vari			
		Black gram			
		Ground nut			

Condition	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Early season drought (delayed onset) Delay by 6 weeks (Specify month)	Well drain soil (Hilly)	Gram	Instead of paddy/ragi/vari, select short duration other crops. Early maturing variety select for all field crops.	Early maturing variety select for all field crops. semi rabi crops/fodder crops may grow	GSSC
		Paddy (transplanting)			
		Ragi/vari			
		Black gram			
		Ground nut			
	Soil (Plain)	Gram	Instead of paddy/ragi/vari, select short duration other crops. Early maturing variety select for all field crops.	Early maturing variety select for all field crops. semi rabi crops/fodder crops may grow	GSSC
		Paddy (transplanting)			
		Ragi/vari			
		Black gram			
		Ground nut			

Condition	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Early season drought (delayed onset)					
Delay by 8 weeks (Specify month)	As above				

Condition	Suggested Contingency measures				
	Major Farming situation	Normal Crop/cropping system	Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
Early season drought (Normal onset)					
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc.	Well drain soil (Hilly)	Gram	Gap filling and thinning. Protective irrigation should be made if available. weeding	Intercultivation.	Interculturing implements through RKVY
		Paddy (transplanting)			
		Ragi/vari			
		Black gram			
		Ground nut			
	Soil (Plain)	Gram	Gap filling and thinning. Protective irrigation should be made if available. weeding	Intercultivation.	Supply of inter cultural implements
		Paddy (transplanting)			
		Ragi/vari			
		Black gram			
		Ground nut			

Condition	Suggested Contingency measures				
	Major Farming situation	Normal Crop/cropping system	Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period)					
At vegetative stage	Well drain soil (Hilly)	Gram	• Spray anti transpirant chemical. Gap filling and thinning. Protective irrigation should be made if available. weeding	• Repeated inter cultivation • Give protective irrigation	As above
		Paddy (transplanting)			
		Ragi/vari			
		Black gram			
		Ground nut			
	Soil (Plain)	Gram	-do-	-do-	As above
		Paddy (transplanting)			
		Ragi/vari			
		Black gram			
		Ground nut			

Condition	Suggested Contingency measures				
	Major Farming situation	Normal Crop/cropping system	Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
Mid season drought (long dry spell)	Well drain soil (Hilly)	Gram	Weeding, Protective irrigation, alternate furrow irrigation.	Interculturing	
		Paddy (transplanting)			
		Ragi/vari			
		Black gram			
		Ground nut			
	Soil (Plain)	Gram	-do-	-----	
		Paddy (transplanting)			
		Ragi/vari			
		Black gram			
		Ground nut			

Condition	Suggested Contingency measures				
	Major Farming situation	Normal Crop/cropping system	Crop management	Rabi Crop planning	Remarks on Implementation
Terminal drought (Early withdrawal of monsoon)	Well drain soil (Hilly)	Gram	Protective irrigation Harvest the crop at physiological maturity	Plan for short duration crops i.e. mung bean,	Farm ponds through IWSM programme Threshing implements through RKVY
		Paddy (transplanting)			
		Ragi/vari			
		Black gram			
		Ground nut			
	Soil (Plain)	Gram	Protective irrigation	Plan for short duration	-do-

		Paddy (transplanting)	Harvest the crop at physiological maturity	crops i.e. mung bean,	
		Ragi/vari			
		Black gram			
		Ground nut			

2.1.2 Drought - Irrigated situation

Condition	Suggested Contingency measures				
	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Delayed release of water in canals due to low rainfall	No canal area				

Condition	Suggested Contingency measures				
	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Limited release of water in canals due to low rainfall	No canal area				

Condition	Suggested Contingency measures				
	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Non release of water in canals under delayed onset of monsoon in	Well drain soil (Hilly)	This is not expected in this district			

Condition	This is not expected in this district				
	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
catchment					
Condition	This is not expected in this district				
	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Lack of inflows into tanks due to insufficient /delayed onset of monsoon	Well drain soil (Hilly)	This is not expected in this district			
	Soil (Plain)				

Condition	This is not expected in this district				
	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Insufficient groundwater recharge due to low rainfall	Well drain soil (Hilly)	This is not expected in this district			
	Soil (Plain)				

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

Condition	Suggested contingency measure			
	Vegetative stage	Flowering stage	Crop maturity stage	Post harvest
Continuous high rainfall in a short span leading to water logging				
Gram				
Paddy (transplanting)	Standing water is more then drain out properly	Standing water is more then drain out properly	Drain out Excess water Harvesting at physiological maturity stage	Shift to safer place
Ragi/vari	Drainage of excess	Drainage of excess	Remove Excess water	Shift to safer

	Water through drainage	Water through drainage	Harvesting at physiological maturity stage	place
Black gram	Drainage of excess Water through drainage	Drainage of excess Water through drainage	Remove Excess water Harvesting at physiological maturity stage and harvest of Pigeonpea for vegetable purpose	Shift to safer place
Ground nut				
Horticulture				
Mango	Provide drainage	Provide drainage	Remove excess water Harvesting at physiological maturity stage	Shift to safe place dry in shade
Cashew nut	Provide drainage	Provide drainage	Remove excess water Harvesting at physiological maturity stage	Shift to safe place dry in shade
Custard apple	Provide drainage	Provide drainage	Remove excess water Harvesting at physiological maturity stage	Shift to safe place dry in shade
sapota	Provide drainage	Provide drainage	Remove excess water Harvesting at physiological maturity stage	Shift to safe place dry in shade
Banana	Provide drainage	Provide drainage	Remove excess water Harvesting at physiological maturity stage	Shift to safe place dry in shade
Vegetable				
Okra	Provide drainage	Provide drainage	Remove excess water	Shift to safe place
Cucurbits	Provide drainage	Provide drainage	Harvesting at physiological maturity stage	Shift to safe place
Brinjal	Provide drainage	Provide drainage	Remove excess water	Shift to safe place
Onion	Provide drainage	Provide drainage	Harvesting at physiological maturity stage	Shift to safe place
Tomato	Provide drainage	Provide drainage	Remove excess water	Shift to safe place
Spices & Condiments				
Turmeric	Provide drainage	Provide drainage	Remove excess water	Shift to safe place
Dry Chilli	Provide drainage	Provide drainage	Remove excess water	Shift to safe

				place
Flower Crops				
Marigold	Provide drainage	Provide drainage	Remove excess water	Shift to safe place
Rose	Provide drainage	Provide drainage	Remove excess water	Shift to safe place
Medicinal & Aromatic				
Safed musli	Provide drainage	Provide drainage	Remove excess water	Shift to safe place dry in shade

Heavy rainfall with high speed wind in a short span	Vegetative stage	Flowering stage	Crop maturity stage	Post harvest
Gram	Provide drainage	Provide drainage	Wind break with shelter belt	Shift to safe place, dry in shade and turn frequently
Paddy (transplanting)	Provide drainage	Provide drainage	Wind break with shelter belt	Shift to safe place, dry in shade and turn frequently
Ragi/vari	Provide drainage	Provide drainage	Wind break with shelter belt	Shift to safe place, dry in shade and turn frequently
Black gram	Provide drainage	Provide drainage	Wind break with shelter belt	Shift to safe place, dry in shade and turn frequently
Ground nut	Provide drainage	Provide drainage	Wind break with shelter belt	Shift to safe place, dry in shade and turn frequently
Horticulture				
Mango	Provide drainage	Provide drainage	Wind break with shelter belt	Shift to safe place, dry in shade and turn

				frequently
Cashew nut	Provide drainage	Provide drainage	Wind break with shelter belt	Shift to safe place, dry in shade and turn frequently
Custard apple	Provide drainage	Provide drainage	Wind break with shelter belt	Shift to safe place, dry in shade and turn frequently
sapota	Provide drainage	Provide drainage	Wind break with shelter belt	Shift to safe place, dry in shade and turn frequently
Banana	Provide drainage	Provide drainage	Wind break with shelter belt	Shift to safe place, dry in shade and turn frequently
Vegetable				
Okra	Provide drainage	Provide drainage	Wind break with shelter belt	Shift to safe place, dry in shade and turn frequently
Cucurbits	Provide drainage	Provide drainage	Wind break with shelter belt	Shift to safe place, dry in shade and turn frequently
Brinjal	Provide drainage	Provide drainage	Wind break with shelter belt	Shift to safe place, dry in shade and turn frequently
Onion	Provide drainage	Provide drainage	Wind break with shelter belt	Shift to safe place, dry in shade and turn frequently
Tomato	Provide drainage	Provide drainage	Wind break with shelter belt	Shift to safe place, dry in shade and turn

				frequently
Spices & Condiments				
Turmeric	Provide drainage	Provide drainage	Wind break with shelter belt	Shift to safe place, dry in shade and turn frequently
Dry Chilli	Provide drainage	Provide drainage	Wind break with shelter belt	Shift to safe place, dry in shade and turn frequently
Flower Crops				
Marigold	Provide drainage	Provide drainage	Wind break with shelter belt	Shift to safe place, dry in shade and turn frequently
Rose	Provide drainage	Provide drainage	Wind break with shelter belt	Shift to safe place, dry in shade and turn frequently
Medicinal & Aromatic				
Safed musli	Provide drainage	Provide drainage	Wind break with shelter belt	Shift to safe place, dry in shade and turn frequently

Outbreak of Pest & Diseases due to unseasonal rains	Vegetative stage	Flowering stage	Crop maturity stage	Post harvest
Paddy	Need based plant protection IPDM	Need based plant protection IPDM	Early harvesting	Need based plant protection IPDM

Gram	Need based plant protection IPDM	Need based plant protection IPDM	Early harvesting	Need based plant protection IPDM
Paddy (transplanting)	Need based plant protection IPDM	Need based plant protection IPDM	Early harvesting	Need based plant protection IPDM
Ragi/vari	Need based plant protection IPDM	Need based plant protection IPDM	Early harvesting	Need based plant protection IPDM
Black gram	Need based plant protection IPDM	Need based plant protection IPDM	Early harvesting	Need based plant protection IPDM
Horticulture				
Mango	Need based plant protection IPDM	Need based plant protection IPDM	Early harvesting	Need based plant protection IPDM
Cashew nut	Need based plant protection IPDM	Need based plant protection IPDM	Early harvesting	Need based plant protection IPDM

Custard apple	Need based plant protection IPDM	Need based plant protection IPDM	Early harvesting	Need based plant protection IPDM
sapota	Need based plant protection IPDM	Need based plant protection IPDM	Early harvesting	Need based plant protection IPDM
Banana	Need based plant protection IPDM	Need based plant protection IPDM	Early harvesting	Need based plant protection IPDM
Vegetable				
Okra	Need based plant protection IPDM	Need based plant protection IPDM	Early harvesting	Need based plant protection IPDM
Cucurbits	Need based plant protection IPDM	Need based plant protection IPDM	Early harvesting	Need based plant protection IPDM
Brinjal	Need based plant protection IPDM	Need based plant protection IPDM	Early harvesting	Need based plant protection IPDM

Onion	Need based plant protection IPDM	Need based plant protection IPDM	Early harvesting	Need based plant protection IPDM
Tomato	Need based plant protection IPDM	Need based plant protection IPDM	Early harvesting	Need based plant protection IPDM
Spices & Condiments				
Turmeric	Need based plant protection IPDM	Need based plant protection IPDM	Early harvesting	Need based plant protection IPDM
Dry Chilli	Need based plant protection IPDM	Need based plant protection IPDM	Early harvesting	Need based plant protection IPDM
Flower Crops				
Marigold	Need based plant protection IPDM	Need based plant protection IPDM	Early harvesting	Need based plant protection IPDM
Rose	Need based plant protection IPDM	Need based plant protection IPDM	Early harvesting	Need based plant protection IPDM

Medicinal & Aromatic				
Safed musli	Need based plant protection IPDM	Need based plant protection IPDM	Early harvesting	Need based plant protection IPDM

2.3 Floods: - Not observed

Condition	Suggested contingency measure			
	Seedling / nursery stage	Vegetative stage	Reproductive stage	At harvest
Transient water logging/ partial inundation				
-NA-				
Horticulture				
-NA-				
Continuous submergence for more than 2 days	Not observed			
-NA-				
Horticulture				
-NA-				
Sea water intrusion	Not observed			
-NA-				

2.4 Extreme events: Heat wave / Cold wave/Frost/ Hailstorm /Cyclone:- Not observed

Extreme event type	Suggested contingency measure			
	Seedling / nursery stage	Vegetative stage	Reproductive stage	At harvest
Heat Wave	Not observed	-	-	-
Horticulture		-	-	-
Cold wave ^a	Not observed	-	-	-
Horticulture		-	-	-
Frost	Not observed	-	-	-
Horticulture		-	-	-
Hailstorm	Not observed	-	-	-
Horticulture		-	-	-
Cyclone	Not observed	-	-	-
Horticulture		-	-	-

2.5 Contingent strategies for Livestock, Poultry & Fisheries

2.5.1 Livestock

Drought	Suggested contingent measures		
	Before the event	During the event	After the event
Feed and fodder availability	<ul style="list-style-type: none"> Insurance Encourage perennial fodder on bunds and waste land on community basis Establishing fodder banks, Encouraging fodder crop in irrigated area Silage-using excess fodder for silage 	<ul style="list-style-type: none"> Utilization of perennial tree and fodder bank reserves Utilizing stored silos Transporting excess fodder from adjoining districts Use of feed mixture 	<ul style="list-style-type: none"> Availing insurance Culling unproductive livestock

Drinking waters	<ul style="list-style-type: none"> Preserving water in the tank for drinking purpose Excavation of bore wells 	<ul style="list-style-type: none"> Using preserved water in the tanks for drinking wherever ground water resources are available priority for drinking purpose 	
Health and disease management	Veterinary preparedness with medicines and vaccine	<ul style="list-style-type: none"> Mass animal health camp and treatment of affected animals once in campaign 	<ul style="list-style-type: none"> Culling of sick animals
Floods			
Feed fodder availability	<ul style="list-style-type: none"> Feeds and fodder should be transported to adjoining well protected areas. Village or Taluka level feed and fodder bank with facilities like TMR machine/ feed block machine should be developed. Prepare balanced feed formulations using available feed resources. 	<ul style="list-style-type: none"> Transportation of fodder especially dry fodder should be done to affected area. Use of Total Mixed Ration (TMR)/ feed block should be encouraged. Use of unconventional feed like tree leaves etc. in ration may be incorporated. 	<ul style="list-style-type: none"> Culling of unproductive animals
Drinking Water	<ul style="list-style-type: none"> Preserving water in water tank for drinking purpose. 	<ul style="list-style-type: none"> Using preserved water for drinking Avoid wastage of water 	<ul style="list-style-type: none"> Repair damaged water sources like tank, pond, wells etc.
Health and disease management	<ul style="list-style-type: none"> Veterinary preparedness with medicines and vaccine Availing Insurance of animals and farm equipments 	<ul style="list-style-type: none"> Mass animal health camp and treatment of animals Ring vaccinations like FMD, HS should be conducted. 	<ul style="list-style-type: none"> Culling of sick animals Proper burial of carcass using disinfection
Cyclone	Not Observed		
Heat wave and cold wave	Not Observed		

2.5.2 Poultry:-

	Suggested contingency measures		
	Before the event	During the event	After the event
Drought			
Shortage of feed ingredients	<ul style="list-style-type: none"> Purchase sufficient quantity of ready feed /raw feed ingredients as per storage facilities and requirement. Identify and test available alternative low cost feed resources in feed testing laboratories for their exact composition for formulating balanced feed. Prepare balanced feed formulation using 	<ul style="list-style-type: none"> Feed formulations using low cost feed ingredients in case of non- availability of high priced conventional ingredients. Keep check on production performance and modify ration consulting poultry specialist. Nutrient density should be increased in 	<ul style="list-style-type: none"> Shift over to good quality feed for optimum production performance.

	<p>available feed resources.</p> <ul style="list-style-type: none"> • Create alternative power generating facilities i.e. Generator set. <p>Take insurance of poultry sheds, equipments and feed factory well in advance may be in the starting phase of opening the farm.</p>	<p>proportion to feed consumption.</p> <ul style="list-style-type: none"> • Avoid feed wastage 	
Drinking water	-	-	-
Health and disease management	<ul style="list-style-type: none"> • Use of anti-stress vitamins (AD₃ECB₁₂-Vimeral / Famitone / Stressvell etc.) in feed and drinking water. • Use of adaptogenetic herbal medicines (Zetress / Zist etc). • Use probiotics (Protexin / Biovet-YC) in feed. • Vaccinate birds against important diseases like R.D., IBD, I.B., Fowl pox according to age as per scheduled programme. 	<ul style="list-style-type: none"> • Use anti-stress, vitamins and adaptogenetic herbal drugs. • Perform vaccination for Ranikhet Disease & Infectious Bronchitis . • Prophylactic medication for important diseases like E.coli & CRD. • Use of electrolytes in feed and drinking water. 	<ul style="list-style-type: none"> • Vaccinate birds as per vaccination schedule. • Perform deworming with Levamisole / Albendazole / Piperazine etc) and use antibiotics, vitamins as per monthly health calendar programme
Floods			
Shortage of feed ingredients	<ul style="list-style-type: none"> • Purchase sufficient quantities of ready feed / raw feed ingredients. • Store feeding material in suitable houses which should be leak proof and without dampness. • Store feed on iron stands away from the wall to avoid increase in moisture & mould growth. • Road repairing for transporting feed and farm products. • Take insurance of poultry sheds, equipments, feed factory and mortality of birds due to drowning in flood water well in advance may be in the starting phase of opening the farm. 	<ul style="list-style-type: none"> • Use of toxin binders (Chek-O-Tox/ UTPP etc.) in the feed. • All electric connections should be in good condition to avoid shock and accident. 	<ul style="list-style-type: none"> • Use of Toxin binder should be continued to avoid development of mycotoxins in the feed
Drinking water	-	-	-
Health and disease management	<ul style="list-style-type: none"> • Complete vaccination as per the programme for various categories of the birds i.e. Layers & 	<ul style="list-style-type: none"> • Use of probiotics / or antibiotics in feed to protect birds from bacterial infections like 	<ul style="list-style-type: none"> • Use of probiotics should be continued in feed for 10-15

	Broilers. <ul style="list-style-type: none"> • Poultry sheds should be constructed at high raised land/or go for raised platform poultry sheds especially in flood affected areas. (conceptional biosecurity) 	E.coli, CRD, Enteritis etc.	days.
Cyclone	Not Observed		
Shortage of feed ingredients			
Drinking water			
Health and disease management			
Heat wave and cold wave	Not Observed		
Shelter/environment management			
Health and disease management			

2.5.3 Fisheries/ Aquaculture : Not Applicable