State : Uttarakhand
Agriculture Contingency Plan for District : Tehri Garhwal

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-Region 14.2		
	Agro-Ecological Region (Planning Commission)	Western Himalayan Region (I)		
	Agro-Climatic Zone (NARP)*	Hill zone (UP-1)		
	List all the districts falling under the NARP Zone	Haridwar, Nainital, Almora, Bageshwar, Champawat, Pithoragarh, Pauri, Tehari, Uttarkashi, Dehradun, Chamoli, Rudraprayag		
	Geographic coordinates of district	Latitude	Longitude	Altitude
		30^0 3` and $30^0$ 53`	77^0 56` and $79^0$ 04`	1550 m
	Name and address of the concerned ZRS/ZARS/ RARS/RRS/ RRTTS	Dr. Atar Singh, Zonal Project Director, GT Road, Rawatpur, New Vikas Bhawan, Kanpur 0512-2550927 (O)		
	Mention the KVK located in the district	Krishi Vigyan Kendra, Ranichauri, Distt. Tehri Garhwal Dr. Laxmi Rawat, OIC, Ph: 01376-252101 (O), 8476004135 (M)		
1.2	**Rainfall**	Average (mm)	Normal Onset (specify week and month)	Normal Cessation (specify week and month)
	SW Monsoon (June-Sep)	1388.1	2^{nd} week of June	4^{th} week of September
	NE Monsoon (Oct.-Dec)	17.4	4^{th} week of November	4^{th} week of December
	Winter (Jan-March)	449.9		
	Summer (Apr.-May)	38.8		
	Annual	**1894.2**		

1.3	Land use pattern of the district (latest statistic)	Geographical 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)	**379**	**322**	**78**	**0.5**	**5**	**1**	**5**	**9**	**6**

1.4	**Major soils**	**Area ('000ha)**	**Percent (%) of total**	
	1. Sub mountain			
	2. Mountain			
	3. Meadow			
	4. Sketetal			
	Others (specify)			
1.5	**Agricultural land use**	**Area ('000ha)**	**Cropping intensity %**	
	Net sown area	56206	**157.4**	
	Area sown More than once	32255		
	Gross cropped area	88461		
1.6	**Irrigation**	**Area ('000ha)/ Number**	**Percent (%)**	
	Pump set	103		
	Lift irrigation			
	Micro-irrigation			
	Gross water availability and use	**No. of blocks**	**% area**	**Quality of water**
	Irrigated area			
	Rainfed area			
	Sources of irrigation	**Number**	**Area ('000ha)**	**% area**
	Canal		4182	
	Open wells		-	

	Bore wells		-	
	Others (Lift pump, Water storage tank, Irrigation channel)		**1362**	

AREA UNDER MAJOR FIELD CROPS & HORTICULTURE ETC.

1.7	**Major crops cultivated**	**Total area (000' ha)**		**Irrigated**		**Rainfed**	
		Kharif (000' ha)		**Rabi (000' ha)**		**Summer**	**Total (000' ha)**
		Irrigated (000' ha)	**Rainfed (000' ha)**	**Irrigated (000' ha)**	**Rainfed (000' ha)**		
	Wheat						**30.4**
	Barnyard millet		20.8				**20.8**
	Finger millet		16.7				**16.7**
	Rice						**13.3**
	Barley				2.2		**2.2**
	Pulses						**1.9**
	Maize		1.7				**1.7**
	Black gram		1422				**1422**
	Masoor						**931**
	Rape seed mustard						**789**
	Red gram	0	702				**702**
	Sesame	0	491				**491**
	Soyabean	0	331				**331**
	Veg. pea						**242**
	Bengal gram						**6**
	Horticulture crops –Fruits	**Total area**		**Irrigated**		**Rainfed**	
	Pome (Apple + Pear)					5429	
	Stone fruit (Peach, Plum, Apricot)					2823	
	Nut fruit (walnut)					4750	
	Citrus					1515	
	Mango					3446	
	Litchi					35	
	Other fruits					2155	
	Horticulture crops – Vegetables	**Total area**		**Irrigated**		**Rainfed**	

	Capsicum			
	Potato	825	110	**715**
	Tomato			
	Veg pea	128	4	**124**
	Onion			
	Horticultural crops- Spices	**Total area**	**Irrigated**	**Rainfed**
	Turmeric	55		
	Chillies	135		
	Coriander	16		
	Garlic	135		
	Ginger	1587		
	Other spices			
	Medicinal and Aromatic crop	**Total area**	**Irrigated**	**Rainfed**
	-	-	-	-
1.8	**Livestock**	**Number ('000)**		
	Cattle	52		
	Buffaloes total	105		
	Commercial dairy farms			
	Goat	101		
	Sheep	14		
	Others (camel, Pig, Yak etc.)	3		
1.9	**Poultry**			
	Commercial			
	Backyard			
1.10	**Inland Fisheries**	**Area**	**Yield (t/ha)**	**Production (tones)**
	Brackish water			
	Fresh water			
	Others			

1.11	**Production and productivity of major crops (Average of last 5 years: 2008-12)**	**Kharif (Average of last 5 years: 2008-12)**		**Rabi (Average of last 5 years: 2008-12)**		**Summer**		**Total**	
		Production (t)	Productivity (kg/ha)	Production (t)	Productivity (kg/ha)	Production (t)	Productivity (kg/ha)	Production (t)	Productivity (kg/ha)
	Rice	21005	1575						

	Wheat			37376	1230				
	Maize	1614	948						
	Barley			2569	1151				
	Barnyard millet	30340	1457						
	Finger millet	22846	1369						
	Black gram	590	415						
	Masoor			761	817				
	Bengal gram			6	10				
	Red gram			525	748				
	Rape seed and mustard			807	1023				
	Sesame	90	183						
	Soybean	253	764						
	Veg. pea			335	1384				
	Major Horticultural crops								
	Fruits crops								
	Apple	1.85	0.50						
	Pear	4.62	1.06						
	Peach	0.79	4.00						
	Plum	2.55	2.20						
	Apricot	1.17	0.80						
	Walnut	1.14	0.24						
	Citrus	2.57	1.70						
	Mango	9.43	2.74						
	Litchi	0.007	0.20						
	Others	2.46	1.14						
	Spices								
	Turmeric	0.32	5.98						
	Chili	0.25	1.85						
	Coriander	0.032	2.00						
	Garlic	0.46	3.43						
	Ginger	11.70	7.38						
	Other spices								
	Others								

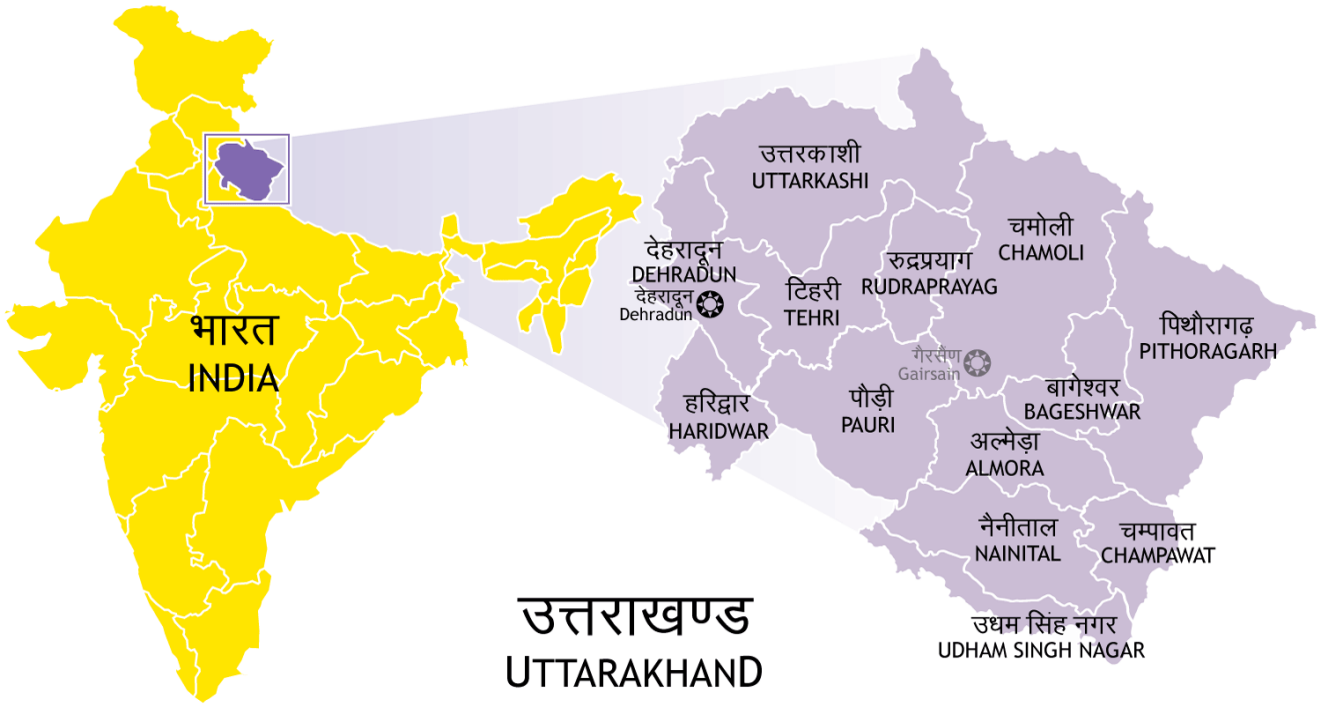
1.12	**Sowing window for 5 major crops (start and end of sowing period**	**Crop 1: Finger millet**	**2: Barnyard millet**	**3: Rice**	**4: Urd**	**5: Maize**
	Kharif – Rainfed	June -September	April- September	May- September	June-September	June- October

	Kharif – Irrigated	-	May-October	-	-	-
		Crop 1: Wheat	**2: Barley**	**3: Masoor**	**4: Sarson**	**5:**
	Rabi – Rainfed	October- April	October- April	October- April	October- March	-
	Rabi – Irrigated	November- May	-	-	-	-

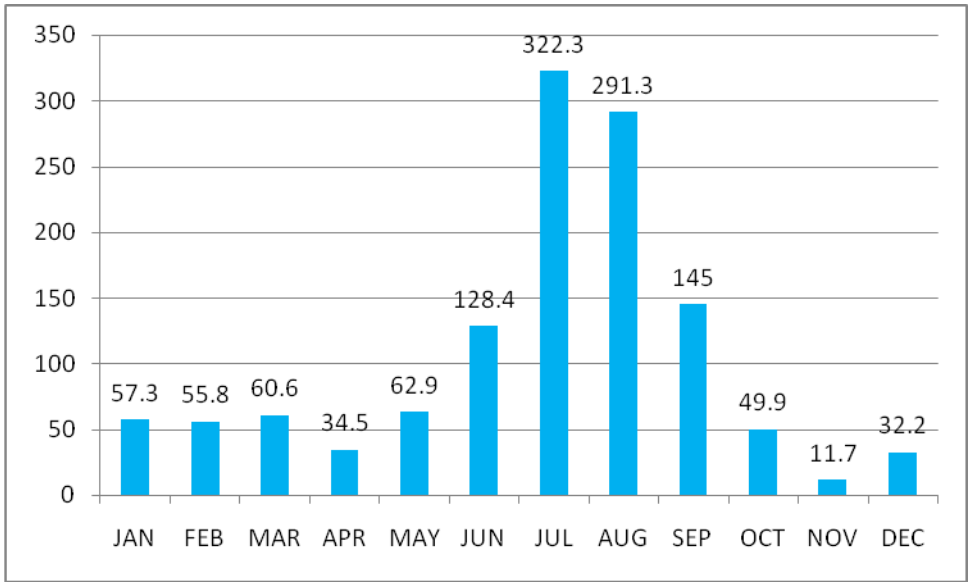
1.13	**What is the major contingency the district is prone to? (tick mark)**	**Regular**			**Sporadic (specify moth of occurrence in brackets**			**None**
		Severe	Moderate	Mild	Severe	Moderate	Mild	
	Drought		✓					
	Flood							✓
	Cyclone							✓
	Hail strom			✓				
	Heat wave			✓				
	Cold wave		✓					
	Frost		✓					
	Sea water inundation							✓
	Pests and disease (specify)							
	White grub (insect)	✓						
	Leaf curl disease in stone fruits		✓					
	Wilt in Capsicum	✓						
	Early blight in Solanaceae	✓						
	Late blight in Solanaceae	✓						
	Rhizome rot in ginger	✓						
	Fruit borer in Capsicum, Tomato	✓						

1.14	**Include digital maps of the district for**	**Location map of district with in State as Annexure -1**	**Enclosed : Yes**
		Mean annual rainfall – 1270 mm	**Enclosed : yes**
		Soil map as Annexure -3	**Enclosed : No**

Annexure 01 : Location map of the Uttarakhand state and district Tehri Garhwal



Annexure II. Mean annual rainfall (mm)



2.0 Strategies for weather related contingencies

2.1 Drought

2.1.1 Rainfed situation

Early season drought (delayed onset)	**Major Farming situation**	**Normal Crop/ cropping system**	**Change in crop/ cropping system**	**Agronomic measure**	**Remarks on implementation**
Delay by 2 weeks **4th week of June**	Rainfed lower hills	Spring rice (Mid of April- Mid May)- Veg. Pea Spring rice – Wheat	Spring rice (Local, Vivek Dhan 82, VL 207, VL 208, VL 209)	Bunding of terraces, Increased seed rate, Mulching, dust mulching, Life saving irrigation through low cost drip sprayer/sprinkler	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan Kendra
		Finger millets + Soybean, Finger millets + Horse Gram, Finger millets – Wheat Finger millets – Fallow	Finger millets (Local, PRM 1, PRM 2, VLM 149) + Soybean (Local, PS 1092), + Horse gram (Local, VL G1) + Wheat (Local, UP 2572, VL 892)	Increased seed rate, Intercropping, Timely weeding, addition of organic manures, application of bio-agents such as Trichoderma, Psuedomonas	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan Kendra
		Rice- Wheat	Rice (Local, VL 207, 208, 209) + Wheat (Local, UP 2572, VL 892)	Light irrigation, Timely weeding, Addition of organic manures (FYM/compost) @ 5-10 t/ha	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan Kendra
	Mid hills south aspect	Spring Rice (End Of March- Mid April)-Veg Pea Cheti Spring Rice –Wheat	Spring rice – (Local, VL 206, VL 209)	Bunding of terraces Increased seed rate Mulching Sowing across the contour	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan Kendra
		Maize – Wheat	Maize (Local, Him 129, Vevek Hybrid 5,9, Ganga 9)	Sowing across the contour Increased seed rate Intercropping of cow pea in	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi

				between rows of maize	Vigyan Kendra
		Finger millets + Soybean/ Horse Gram	Finger millets- (Local, PRM 1, PRM 2, VLM 149) + Soybean- (Local, PS 1092) / Horse Gram- (Local, VL G1)	Increased seed rate Intercropping Timely weeding	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan Kendra
		Soybean+ Barnyard millet-Veg. Pea	Soybean- (Local, PS 1092) + Barnyard millet – (Local, PRJ 1, PRJ 2)	Increased seed rate, Intercropping, Timely weeding, Addition of organic manures (FYM/compost)@ 10-15 t /ha treated with Trichoderma	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan Kendra
		Finger millets +Soybean -Wheat	Finger millets- (Local, PRM 1, PRM 2, VLM 149) Soybean- Local, PS 1092 Wheat (VL 892, HS 420)	Increased seed rate, Timely weeding, Inter cropping Mulching	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan Kendra
	Mid hills north aspect	Spring rice	Spring rice (VL 206, VL 209, VL 207)	Bunding of terraces Increased seed rate Mulching Sowing across the contour	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan Kendra
		Finger millets + Soybean	Finger millets (Local, PRM 1, PRM 2, VLM 146) + Soybean (Local, PS 1092)	Increased seed rate Intercropping Timely weeding Sowing across the contour	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan Kendra
		Soybean+ Barnyard millet	Soybean (Local, PS 1092)+ Barnyard millet (VLM 172, PRJ 1)	Increased seed rate Intercropping Timely weeding Sowing across the contour	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan Kendra
		Soybean Finger millet Barnyard millet	Soybean (Local, PS 1092, PRS 1) Finger millet (Local, PRM 1, PRM 2, VLM 146)	Increased seed rate Mulching Timely weeding Sowing across the contour	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan Kendra
	High hills	Finger millets mixed with Amaranth/ Pulses	Finger millets (Local, PRM 1, PRM 2, VLM 146, VLM 149) +	Increased seed rate Intercropping Timely weeding	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi

			Horsegram (Local, VL G1)/ Rice bean (Local, PRR 1, PRR 2) Amaranth (PRA 1, PRA 2, VL Chua 44)	Addition of organic manures (FYM or compost)	Vigyan Kendra

Condition			**Suggested contingency measures**		
Early season drought (delayed onset)	**Major Farming situation**	**Normal crop/cropping system**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
Delay by 4 weeks (2nd week of July))	Rainfed lower hills	Spring rice (Mid of April-Mid May)- Veg. Pea Spring rice - Wheat	Change in crop Finger millet (PRM 2, PRM 3, VLM 146)	Change of the crop, Use failed crop as fodder, Addition of organic manures (FYM/Compost) @10-15 t/ha	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan Kendra
		Finger millets-Soybean, Finger millets-Horse Gram, Finger millets –Wheat Finger millets –Fallow	Finger millet (PRM 2, PRM 3, VLM 146) Barnyard millet (PRJ 1, PRM 172, VLM 29)	Sowing may be delayed till appropriate soil moisture conditions reached Increased seed rate	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan Kendra
		Rice- Wheat	Change in crop Finger millet (PRM 2, PRM 3, VLM 146) Barnyard millet (PRJ 1, VLM 29, VLM 172)	Increased seed rate, Mulching, Sowing across the slope Addition of organic manure (FYM/Compost @ 10-15 t/ha) Application of Trichoderma	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan Kendra
	Mid hills south aspect	Spring Rice (End Of March- Mid April)-Veg Pea Cheti Spring Rice –Wheat	Change in crop Soybean (Local, PS 1029) + Barnyard millet (PRJ 1, VLM 29, VLM 172)	Bunding of terraces Increased seed rate Mulching Sowing across the contour	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan Kendra
		Spring rice - Wheat	Soybean (Local, PS 1092), Horse gram (VL-8)	Increased seed rate Intercropping Timely weeding	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan Kendra

		Maize –Wheat	Finger millet (PRJ 1, VLM 172, VLM 29) Rajma (VL Rajma 63, 125)	Change of the crop Use failed crop as fodder Increased seed rate Intercropping Timely weeding	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan
		Finger millets + Soybean/ Horse Gram	Finger millet – Local, VLM 146, VLM 149, VLM 315, VLM 324, PRM 1, PRM 2 Barnyard millet – Local, VL 29, VL 21, VL Madira 172, PRJ 1		Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan
	Mid hills north aspect	Spring rice (Sowing in end of March to mid April) – Veg. Pea	Rajma (VL Rajma 63, 125) Finger millets (VLM 146, VLM 149, PRM 1, PRM 2)- Wheat	Change of crops Increased seed rate Intercropping Timely weeding	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan
		Finger millets + Soybean	Soybean (Local, PS 1092) +Barnyard millets (PRJ 1, VLM 172) – Wheat (UP 2572)	Increased seed rate Intercropping Timely weeding	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan
		Soybean+ Barnyard millet	Soybean (Local, PS 1092) +Barnyard millets (PRJ 1, VLM 172), Wheat (UP 2572)	Increased seed rate Intercropping Timely weeding	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan
	High hills	Finger millets mixed with Amaranth/ Pulses	Finger millets (Local, VLM 146, VLM 149) + Horsegram (VLG1, Local) / Rice bean (PRR 1, PRR2) Amaranth (PRA 123, VL Chua 44) + Horsegram (VLG1, VLG 8) / Rice bean (PRR 1, PRR2)	Increased seed rate Intercropping Timely weeding	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan

Condition			Suggested contingency measures		
Early season drought (delayed onset)	Major Farming situation	Normal crop/cropping system	Change in crop/cropping system	Agronomic measures	**Remarks on Implementation**
Delay by 6 weeks (4th week of July)	Rainfed lower hills	Spring rice (Mid of April-Mid May)- Veg. Pea Spring rice – Wheat	Jethi rice (Govind, Pant Hybrid Dhan 1, VL Dhan 221, Vivek Dhan 154)	Bunding of terraces Increasing seed rate Mulching	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan
		Finger millets + Soybean, Finger millets + Horse Gram, Finger millets – Wheat Finger millets – Fallow	Cauliflower (Pusa Dipali, Improved Japani), Tomato (Solan Sindhur, Himsona, Palam Pink), Coriander, Spinach, Cabbage	Proper drainage	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan
		Rice- Wheat			
	Mid hills south aspect	Spring rice	Cauliflower (Pusa Dipali, Improved Japani), Tomato (Solan Sindhur, Himsona, Palam Pink), Coriander, Spinach, Cabbage	Bunding of terraces Increased seed rate Mulching Sowing across the contour	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan
		Finger millets + Black soybean /Horsegram	Cauliflower (Pusa Dipali, Improved Japani), Tomato (Solan Sindhur, Himsona, Palam Pink), Coriander, Spinach, Cabbage Maize- African tall, Vivek Makka 9, Vivek Makka 10, Pant Sankar Makka 1, QPM 1	Proper drainage Weeding Sowing across the slope	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan
		Black soybean+ Barnyard millet			
	Mid hills north aspect	Spring rice	Jethi rice (Govind, Pant Hybrid Dhan 1, VL Dhan 221, Vivek Dhan 154)	Bunding of terraces Increased seed rate Mulching Sowing across the contour	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan
		Finger millets + Black soybean /Horsegram	Cauliflower (Pusa Dipali, Improved Japani), Tomato (Solan Sindhur, Himsona, Palam Pink),	Increased seed rate Intercropping Gap filling Timely weeding	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan
		Black soybean+ Barnyard			

		millet	Coriander, Spinach, Cabbage Maize- African tall, Vivek Makka 9, Vivek Makka 10, Pant Sankar Makka 1, QPM 1 Black soybean+ Barnyard millet	Proper drainage	
	High hills	Finger millets mixed with Amaranth/ Pulses	Amaranth Rice bean (PRR 1, PRR 2) Maize- African tall, Vivek Makka 9, Vivek Makka 10, Pant Sankar Makka 1, QPM 1	Increased seed rate Intercropping Gap filling Timely weeding Proper drainage	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan

Condition			**Suggested contingency measures**		
Early season drought (delayed onset)	Major Farming situation	Normal crop/cropping system	Change in crop/cropping system	Agronomic measures	**Remarks on Implementation**
Delay by 8 weeks (2nd week of August)	Rainfed lower hills	Spring rice	Change of crop Cow pea (Pant lobia 1, Pant lobia 2) Vegetables crop i.e. Radish, Veg. Pea, Vegetable Rai Horsegram + Sesamum (Shekhar, T 78) Urd bean- (PU 35, PU 19) + Maize (African tall, Vivek Makka 9, Vivek Makka 10, Pant Sankar Makka 1, QPM 1)	Bunding of terraces Increased seed rate Mulching Increased seed rate Intercropping Timely weeding	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan Kendra
		Finger millets mixed with Black soybean /Horsegram			
	Mid hills south aspect	Spring rice	Cow pea - (Pant lobia 1, Pant lobia 2), Toria (,Bhawani), Spinach- (Local, Palampur Harit), Coriander, Tomato (Himsona, Solan Sindhuri), Radish (Pusa Chetki, Pusa	Bunding of terraces Increased seed rate Mulching Sowing across the contour Timely weeding	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan Kendra
		Finger millets + Black soybean /Horsegram			
		Black soybean+ Barnyard millet			

			Himani) Maize- African tall, Vivek Makka 9, Vivek Makka 10, Pant Sankar Makka 1, QPM 1 Barley (HBL- 276), Green Fodder (Berseem, Oat (Kent, UPO 94/212)		
	Mid hills north aspect	Spring rice	Cow pea - (Pant lobia 1, Pant lobia 2), Toria (,Bhawani), Spinach- (Local, Palampur Harit), Coriander, Tomato (Himsona, Solan Sindhuri), Radish (Pusa Chetki, Pusa Himani) Maize- African tall, Vivek Makka 9, Vivek Makka 10, Pant Sankar Makka 1, QPM 1 Barley (HBL- 276), Green Fodder Berseem, Oat (Kent, UPO 94/212)	Bunding of terraces Increased seed rate Mulching Sowing across the contour Increased seed rate Intercropping Timely weeding	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan Kendra
		Finger millets + Black soybean /Horsegram			
		Black soybean+ Barnyard millet			
		Spring rice- Local, VL 206, VL 207, VL 208, VL 209 Black Soybean- Local Horsegram- Local, VLG 1 Finger millet – Local, VLM 146, VLM 149 Barnyard millet – Local	Cow pea- Pant lobia 1, Pant lobia 2 Sesamum- Shekhar, T 78 Urd bean- PU 35, PU 19 Maize- African tall, Vivek Makka 9, Vivek Makka 10, Pant Sankar Makka 1, QPM 1		
	High hills	Finger millets mixed with Amaranth/ Pulses	Radish (Pusa Chetki, Pusa Himani), Tomato (Palam Pink, Himasona, Solan Sindhuri), Garlic (GHC 1), Coriander Green fodder Barley (HBL 276)	Increased seed rate Intercropping Timely weeding	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan Kendra

			Oat (Kent, UPO- 94/212) Maize		

***Matrix for specifying condition of early season drought due to delayed onset of monsoon (2, 4, 6 & 8 weeks) compared to normal onset (2.1.1)**

Normal onset (Month and week)	**Month and week for specifying condition of early season drought due to delayed onset of monsoon**			
	Delay in onset of monsoon by			
	2 wks	**4 wks**	**6 wks**	**8 wks**
June 2nd wk	June 4th wk	July 2nd wk	July 4th wk	Aug 2nd wk
June 3rd wk	July 1st wk	July 3rd wk	Aug 1st wk	Aug 3rd wk
June 4th wk	July 2nd wk	July 4th wk	Aug 2nd wk	Aug 4th wk
July 1st wk	July 3rd wk	Aug 1st wk	Aug 3rd wk	Sep 1st wk
July 2nd wk	July 4th wk	Aug 2nd wk	Aug 4th wk	Sep 2nd wk
July 3rd wk	Aug 1st wk	Aug 3rd wk	Sep 2nd wk	Sep 4th wk

Condition			**Suggested Contingency measures**		
Early season drought (Normal onset)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Soil nutrient & moisture conservation measures[d]**	**Remarks on Implementation[e]**
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc.	Rainfed lower hills	Spring rice (Mid of April- Mid May)- Veg. Pea Spring rice – Wheat	No Change	Spray of NPK solution or N top dressing recommended dosage with rain incidences, Rain water harvesting from surrounding Mulching, Bunding and life saving irrigation Use of local available plant material for mulching	Constructing rain water harvesting ponds through IWMP and MNREGA
		Finger millets + Soybean, Finger millets + Horse Gram, Finger millets – Wheat Finger millets – Fallow	Gap filling /re sowing		

		Rice- Wheat	Gap filling through seddlings		
	Mid hills south aspect	Spring Rice (End Of March-Mid April)-Veg Pea Cheti Spring Rice –Wheat	No change	Spray of NPK solution or N top dressing recommended dosage with rain incidences, Rain water harvesting from surrounding Mulching, Bunding and life saving irrigation Use of local available plant material for mulching	Constructing rain water harvesting ponds through IWMP and MNREGA
		Maize – Wheat	Gap filling / re-sowing		
		Finger millets + Soybean/ Horse Gram			
		Soybean+ Barnyard millet-Veg. Pea			
		Finger millets +Soybean -Wheat			
	Mid hills north aspect	Spring rice	No change	Spray of NPK solution or N top dressing recommended dosage with rain incidences, Rain water harvesting from surrounding Mulching, Bunding and life saving irrigation Use of local available plant material for mulching	Constructing rain water harvesting ponds through IWMP and MNREGA
		Finger millets + Soybean	No change		
		Soybean+ Barnyard millet	Gap filling through seedlings		
		Soybean Finger millet Barnyard millet	Gap filling through seedlings		
	High hills	Finger millets mixed with Amaranth/ Pulses	Gap filling / re-sowing	Spray of NPK solution or N top dressing recommended dosage with rain incidences, Rain water harvesting from surrounding Mulching, Bunding and life saving irrigation Use of local available plant material for mulching	Constructing rain water harvesting ponds through IWMP and MNREGA

Condition			**Suggested Contingency measures**		
Mid season drought	**Major Farming**	**Normal Crop/cropping**	**Crop management[c]**	**Soil nutrient &**	**Remarks on Implementation[e]**

(long dry spell, consecutive 2 weeks rainless (>2.5 mm) period)	situation[a]	system[b]		moisture conservation measues[d]	
At vegetative stage	Rainfed lower hills	Spring rice (Mid of April- Mid May)- Veg. Pea Spring rice – Wheat	Use anti-transpiration, life saving irrigation if available	Foliar N management (1% Urea spray) instead of top N dressing, Efficient weed management and their in-situ mulching, Use local available plant material for mulch	Preparation of water harvesting ponds through MNREGA
		Finger millets + Soybean, Finger millets + Horse Gram, Finger millets – Wheat Finger millets – Fallow			
		Rice- Wheat			
	Mid hills south aspect	Spring Rice (End Of March- Mid April)-Veg Pea Cheti Spring Rice –Wheat	Use anti-transpiration, life saving irrigation if available, thinning for reducing plant population	Foliar N management (1% Urea spray) instead of top N dressing, Efficient weed management and their in-situ mulching, Use local available plant material for mulch	Preparation of water harvesting ponds through MNREGA
		Maize – Wheat			
		Finger millets + Soybean/ Horse Gram			
		Soybean+ Barnyard millet-Veg. Pea			
		Finger millets +Soybean -Wheat			
	Mid hills north aspect	Spring rice	Use anti-transpiration, life saving irrigation if available, thinning for reducing plant population	Foliar N management (1% Urea spray) instead of top N dressing, Efficient weed management and their in-situ mulching, Use local available plant material for mulch	Preparation of water harvesting ponds through MNREGA
		Finger millets + Soybean			
		Soybean+ Barnyard millet			
		Soybean Finger millet Barnyard millet			
		Finger millets mixed with Amaranth/ Pulses	Use anti-transpiration, life saving irrigation if available,	If crop stand is better then apply foliar N	Preparation of water harvesting ponds through MNREGA

	High hills		thinning for reducing plant population	management (1% Urea spray) instead of top N dressing, Efficient weed management and their in-situ mulching, Use local available plant material for mulch	

Condition			**Suggested Contingency measures**		
Mid season drought (long dry spell)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Soil nutrient & moisture conservation measues[d]**	**Remarks on Implementation[e]**
At flowering/ fruiting stage	Rainfed lower hills	Spring rice (Mid of April- Mid May)- Veg. Pea Spring rice – Wheat	Site specific crop management technologies Thinning, Life saving irrigation from rain water harvesting ponds Weeding and weed mulching Anti-transpiration spray Salicylic acid spray to induce early maturity Harvesting at physiological maturity Use crop as fodder if crop stand is poor	If crop stand is better then apply foliar N management (1% Urea spray) instead of top N dressing, Efficient weed management and their in-situ mulching, Use local available plant material for mulch	Preparation of water harvesting ponds through MNREGA and IWMP
		Finger millets + Soybean, Finger millets + Horse Gram, Finger millets – Wheat Finger millets – Fallow			
		Rice- Wheat			
	Mid hills south aspect	Spring Rice (End Of March-Mid April)-Veg Pea Cheti Spring Rice –Wheat	Site specific crop management technologies Thinning, Life saving irrigation from rain water harvesting ponds Weeding and weed mulching Anti-transpiration spray Salicylic acid spray to induce early maturity Harvesting at physiological maturity	If crop stand is better then apply foliar N management (1% Urea spray) instead of top N dressing, Efficient weed management and their in-situ mulching, Use local available plant	Preparation of water harvesting ponds through MNREGA and IWMP
		Maize – Wheat			
		Finger millets + Soybean/ Horse Gram			
		Soybean+ Barnyard millet-Veg. Pea			

			Use crop as fodder if crop stand is poor	material for mulch	
	Mid hills north aspect	Spring rice Finger millets + Soybean Soybean+ Barnyard millet Soybean Finger millet Barnyard millet	Site specific crop management Life saving irrigation Anti-transpiration spray Salicylic acid spray to induce earliness	Foliar N management (1% Urea spray) instead of top N dressing, Efficient weed management and their in-situ mulching, Use local available plant material for mulch	Preparation of water harvesting ponds through MNREGA and IWMP
	High hills	Finger millets mixed with Amaranth/ Pulses	Site specific crop management Life saving irrigation Anti-transpiration spray Salicylic acid spray to induce earliness Harvesting at physiological maturity	In-situ conservation of moisture, Efficient weed management and use it as in-situ mulching Use local available plant material	Preparation of water harvesting ponds through MNREGA and IWMP

2.1.2 **Rainfed situation (Rabi season)**

Condition			**Suggested contingency measure**		
	Major Farming situation	**Normal Crop/ cropping system**	**Change in crop/ cropping system**	**Agronomic measure**	**Remarks on implementation**
Delay by 2 weeks (specify month) **1st week of January** **(Normal onset 20th Dec ± 31 days)**	Rainfed lower hills and valley	Spring rice (Mid of April- Mid May)- Veg. Pea Spring rice – Wheat	No Change	Addition of organic manures (FYM/compost) @ 5-10 t/ha Apply locally available mulching material for soil moisture conservation	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan Kendra
		Finger millets + Soybean, Finger millets + Horse Gram, Finger millets – Wheat Finger millets – Fallow	No change Wheat (Local, UP 2572, HS 420)		
		Rice- Wheat	Intercropping of Late sown Wheat (HS 420, VL 892, HSW- 42)		

	Mid hills south aspect	Spring Rice (End Of March- Mid April)-Veg Pea Cheti Spring Rice –Wheat	No change	Addition of organic manures (FYM/compost)@ 10-15 t /ha treated with Trichoderma Apply locally available mulching material for soil moisture conservation	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan Kendra
		Maize – Wheat	Wheat (Local, UP 2572, HS 420)		
		Finger millets + Soybean/ Horse Gram	No change		
		Soybean+ Barnyard millet-Veg. Pea	No change		
	Mid hills north aspect	Spring rice		Addition of organic manures (FYM/compost)@ 10-15 t /ha treated with Trichoderma Apply locally available mulching material	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan Kendra
		Finger millets + Soybean			
		Soybean+ Barnyard millet			
		Soybean Finger millet Barnyard millet			
	High Hills	Finger millets mixed with Amaranth/ Pulses	No change		

Condition			**Suggested contingency measure**		
	Major Farming situation	**Normal Crop/ cropping system**	**Change in crop/ cropping system**	**Agronomic measure**	**Remarks on implementation**
Delay by 4 weeks (specify month) **3rd week of January** **(Normal onset 20th Dec ± 31 days)**	Rainfed lower hills and valley	Spring rice (Mid of April- Mid May)- Veg. Pea Spring rice – Wheat	No Change	Addition of organic manures (FYM/compost) @ 5-10 t/ha Apply locally available mulching material for soil moisture conservation	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan Kendra
		Finger millets + Soybean, Finger millets + Horse Gram, Finger millets – Wheat Finger millets – Fallow	No change Wheat (Local, UP 2572, HS 420) Potato (Kufri Jyoti), coriander, Spinach		
		Rice- Wheat	Intercropping of Late sown Wheat (HS 420, VL		

			892, HSW- 42)		
	Mid hills south aspect	Spring Rice (End Of March- Mid April)-Veg Pea Cheti Spring Rice –Wheat	No change	Addition of organic manures (FYM/compost)@ 10-15 t /ha treated with Trichoderma Apply locally available mulching material for soil moisture conservation	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan Kendra
		Maize – Wheat	Wheat (Local, UP 2572, HS 420) Potato (Kufri Jyoti), coriander, Spinach		
		Finger millets + Soybean/ Horse Gram	No change		
		Soybean+ Barnyard millet-Veg. Pea	No change		
	Mid hills north aspect	Spring rice	No change	Addition of organic manures (FYM/compost)@ 10-15 t /ha treated with Trichoderma Apply locally available mulching material for soil moisture conservation	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan Kendra
		Finger millets + Soybean			
		Soybean+ Barnyard millet	No change		
		Soybean Finger millet Barnyard millet	Potato (Kufri Jyoti), coriander, Spinach		
	High Hills	Finger millets mixed with Amaranth/ Pulses	No change		

Condition			**Suggested contingency measure**		
	Major Farming situation	**Normal Crop/ cropping system**	**Change in crop/ cropping system**	**Agronomic measure**	**Remarks on implementation**
Delay by 6 weeks (specify month) **1st week of February** **(Normal onset 20th Dec ± 31 days)**	Rainfed lower hills and valley	Spring rice (Mid of April- Mid May)- Veg. Pea Spring rice – Wheat	Change of crop Potato (Kufri Jyoti), coriander, Spinach	Addition of organic manures (FYM/compost) @ 5-10 t/ha Apply locally available mulching material for soil moisture conservation	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan Kendra
		Finger millets + Soybean, Finger millets + Horse Gram, Finger millets – Wheat Finger millets – Fallow	Change of crop Potato (Kufri Jyoti), coriander, Spinach Change of crop Potato (Kufri Jyoti),		

		Rice- Wheat	coriander, Spinach		
	Mid hills south aspect	Spring Rice (End Of March- Mid April)-Veg Pea Cheti Spring Rice –Wheat	Change of crop Potato (Kufri Jyoti), coriander, Spinach No change No change	Addition of organic manures (FYM/compost)@ 10-15 t /ha treated with Trichoderma Apply locally available mulching material for soil moisture conservation	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan Kendra
		Maize – Wheat			
		Finger millets + Soybean/ Horse Gram			
		Soybean+ Barnyard millet-Veg. Pea			
	Mid hills north aspect	Spring rice	Change of crop Potato (Kufri Jyoti), coriander, Spinach	Addition of organic manures (FYM/compost)@ 10-15 t /ha treated with Trichoderma Apply locally available mulching material for soil moisture conservation	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan Kendra
		Finger millets + Soybean			
		Soybean+ Barnyard millet			
		Soybean Finger millet Barnyard millet			
	High Hills	Finger millets mixed with Amaranth/ Pulses	No change		

Condition			**Suggested contingency measure**		
	Major Farming situation	**Normal Crop/ cropping system**	**Change in crop/ cropping system**	**Agronomic measure**	**Remarks on implementation**
Delay by 8 weeks (specify month) 3rd week of February (Normal onset 20th Dec ± 31 days)	Rainfed lower hills and valley	Spring rice (Mid of April- Mid May)- Veg. Pea Spring rice – Wheat	Chang of crop Potato (Kufri Jyoti), coriander, Spinach	Addition of organic manures (FYM/compost) @ 5-10 t/ha Apply locally available mulching material for soil moisture conservation	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan Kendra
		Finger millets + Soybean, Finger millets + Horse Gram, Finger millets – Wheat Finger millets – Fallow			
		Rice- Wheat			

	Mid hills south aspect	Spring Rice (End Of March- Mid April)-Veg Pea Cheti Spring Rice –Wheat	Chang of crop Potato (Kufri Jyoti), coriander, Spinach	Addition of organic manures (FYM/compost)@ 10-15 t /ha treated with Trichoderma Apply locally available mulching material for soil moisture conservation	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan Kendra
		Maize – Wheat			
		Finger millets + Soybean/ Horse Gram			
	Mid hills north aspect	Spring rice	Change of crop Potato (Kufri Jyoti), coriander, Spinach	Addition of organic manures (FYM/compost)@ 10-15 t /ha treated with Trichoderma Apply locally available mulching material for soil moisture conservation	Supply of seeds through TDC, NSC, Dept. of Agriculture and Krishi Vigyan Kendra
		Finger millets + Soybean			
		Soybean+ Barnyard millet			
		Soybean Finger millet Barnyard millet			
	High Hills	Finger millets mixed with Amaranth/ Pulses	No change		

2.1.2 Drought - Irrigated situation

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]**
Delayed release of water in canals due to low rainfall	1) Farming situation: Mention source of irrigation, topography (upland/lowland) and soil colour & depth Eg; canal irrigated shallow red soils; **tankfed medium deep black soils**	Cropping system 1:			
		Cropping system 2:			
		Cropping system 3:			
	2) Farming situation:	Cropping system 1:			
		Cropping system 2:			
		Cropping system 3:			

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]**
Limited release of water in canals due to low rainfall	1) Farming situation: Mention source of irrigation, topography (upland/lowland) and soil colour & depth Eg; canal irrigated shallow red soils; **tankfed medium deep black soils**	Cropping system 1:			
		Cropping system 2:			
		Cropping system 3:			
	2) Farming situation:	Cropping system 1:			
		Cropping system 2:			
		Cropping system 3:			

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 monsoon in catchment	1) Farming situation: Mention source of irrigation, topography (upland/lowland) and soil colour & depth Eg; canal irrigated shallow red soils; **tankfed medium deep black soils**	Cropping system 1:			
		Cropping system 2:			
		Cropping system 3:			
	2) Farming situation:	Cropping system 1:			
		Cropping system 2:			
		Cropping system 3:			

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	1) Farming situation: Mention source of irrigation, topography (upland/lowland) and soil colour & depth Eg; canal irrigated shallow red soils; **Tube well irrigated medium red soils**	Cropping system 1:			
		Cropping system 2:			
		Cropping system 3:			
	2) Farming situation:	Cropping system 1:			
		Cropping system 2:			
		Cropping system 3:			

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]**
Insufficient groundwater recharge due to low rainfall	1) Farming situation: Mention source of irrigation, topography (upland/lowland) and soil colour & depth Eg; canal irrigated shallow red soils; **tankfed medium deep black soils**	Cropping system 1:			
		Cropping system 2:			
		Cropping system 3:			
	2) Farming situation:	Cropping system 1:			
		Cropping system 2:			

		Cropping system 3:			
Any other condition (specify)					

Notes:

[f] Describe such as uplands, medium and low lands and source of irrigation such as tank fed medium or deep black/loamy/red soils, tube well irrigated red soils, canal irrigated red soils, well irrigated black soils etc.,

[g] The normal crop or cropping systems grown in a given irrigated situation

[h] Suggested change in the crop, variety or cropping system in view of delay in release of irrigation water, less water availability etc.,

[I] All agronomic measures like improved methods of irrigation (skip row etc.), micro irrigation (drip/sprinkler/sub-surface), deficit irrigation, limited area irrigation, mulching etc, that improve water use efficiency and make best use of limited water including methods of ground water recharge and sharing.

[j] Comments on source of availability of seed of the alternate crop or variety, any constraints in marketing of alternative crop implications for livestock and dairy sectors and details of state or central schemes like National Rural Employment Guarantee Scheme (NREGS), Rashtriya Krishi Vikas Yojana (RKVY), National Food Security Mission (NFSM), Integrated Scheme on Oilseeds, Pulses, Oilpalm and Maize (ISOPOM), National Horticulture Mission (NHM) etc., which facilitate implementation of the agronomic measures suggested.

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]**
Rice	Proper drainage	Proper drainage	Drain out Harvesting at physiological maturity stage	Shift to safe place dry in shade and turn frequently, Safe storage against storage pest and disease
Finger millet	Proper drainage	Proper drainage	Drain out Harvesting at physiological maturity stage	Shift to safe place dry in shade and turn frequently, Safe storage against storage pest and disease
Barnyard millet	Proper drainage	Proper drainage	Drain out Harvesting at physiological maturity stage	Shift to safe place dry in shade and turn frequently, Safe storage against storage pest and disease
Soybean	Proper drainage	Proper drainage	Drain out Harvesting at physiological maturity stage	Shift to safe place dry in shade and turn frequently, Safe storage against storage pest and disease
Maize	Proper drainage	Proper drainage	Drain out Harvesting at physiological	Shift to safe place dry in shade and turn frequently, Safe storage against

			maturity stage	storage pest and disease
Horticulture	-	-	-	-
Heavy rainfall with high speed winds in a short span[2]	-	-	-	-
Horticulture	-	-	-	
Outbreak of pests and diseases due to unseasonal rains				
Rice	Need based plant Protection IPDM	Need based plant Protection IPDM	Need based plant Protection IPDM	
Finger millet	Need based plant Protection IPDM	Need based plant Protection IPDM	Need based plant Protection IPDM	
Barnyard millet	Need based plant Protection IPDM	Need based plant Protection IPDM	Need based plant Protection IPDM	
Soybean	Need based plant Protection IPDM	Need based plant Protection IPDM	Need based plant Protection IPDM	
Maize	Need based plant Protection IPDM	Need based plant Protection IPDM	Need based plant Protection IPDM	
Horticulture	-	-	-	-

[k] Such as drainage in black soils, indicate taking up need based inter-culture operations, outbreak of pests/diseases along with their management etc.

[l] Such as drainage in black soils, application of hormones/nutrient sprays to prevent flower drop or promote quick flowering/fruiting and indicate possibility of pest/disease outbreak with need based prophylactic / curative management etc.

[m] Such as drainage in black soils, measures for preventing seed germination etc and Indicate possibility of harvesting at physiological maturity immediately and shifting produce to safer place and protection against pest/disease damage in storage etc.

[n] Such as shifting of produce to safer place for drying and maintaining the quality of grain/fodder and protection against pest/disease damage in storage etc

2.3 Floods: Not applicable

Condition	Suggested contingency measure[o]			
Transient water logging/ partial inundation[1]	**Seedling / nursery stage**	**Vegetative stage**	**Reproductive stage**	**At harvest**
Horticulture	-	-	-	-
Continuous submergence for more than 2 days[2]	-	-	-	-
Sea water intrusion[3]	-	-		-

-

Notes:

[1] Water logging due to heavy rainfall, poor drainage in vertisols, flash floods in streams and rivers due to high rainfall, breach of embankments

[2] If the water remains in the field due to continuous rains, poor infiltration and push back effect

[3] Entry of sea water into cultivated fields in coastal districts due to tidal wave during cyclones or tsunami; intrusion of seawater into groundwater in coastal districts

[o] Crop/field management depends on nature of material (sand or silt) deposited during floods. In sand deposited crop fields/ fallows indicate ameliorative measures such as early removal of sand for facilitating *rabi* crop or next kharif. In silt deposited indo-gangetic plains, indicate early *rabi* crop plan in current cropped areas and current fallow lands. Indicate drainage of stagnating water and strengthening of field bunds etc. In diara land areas indicate crop plans for receding situations. Usually rice cropped areas are flood prone causing loss of nurseries, delayed transplanting or damage to the already transplanted fields etc. Indicate community nursery raising, scheduling bushenings, re-transplanting in damaged fields and transplanting new areas or direct seeding including seed availability so that the season is not lost. Indicate steps for preventing pre-mature germination of submerged crop at maturity or harvested produce.

2.4 Extreme events: Heat wave/ Cold wave/ Frost/ Hailstorm/ Cyclone

Extreme event type	Suggested contingency measure			
	Seedling/ nursery stage	**Vegetative stage**	**Reproductive stage**	**At harvest**
Heat wave				
Upland rice	-	Use of wind breaks, life saving irrigation		
Transplanted rice	Light irrigation	Irrigation, mulching		
Finger millet	-	Irrigation, mulching		
Horticulture				
Fruit crop	Irrigation in the evening hours	Irrigation and mulching in tree basin	Irrigation and mulching in tree basin	
Veg crop (Tomato, Capsicum, Caulifower etc.)	-	Life saving irrigation in evening hours	-	
Cold wave				
Wheat	-	Use of wind breaks, light irrigation		

Oil seed	-	Use of wind breaks, light irrigation		
Pulse	-	Use of wind breaks, light irrigation		
Horticulture				
Frost				
Wheat	-	Light irrigation, spray of 2@ urea, burning around the field		
Oilseed	-	Light irrigation, spray of 2@ urea, burning around the field		
Pulse	-	Light irrigation, spray of 2@ urea, burning around the field		
Horticulture				
Veg pea	-	Light irrigation and spray of karathane 1 ml/lt water in January		
Potato	-	Light irrigation and two spray of Indofill M-45		
Mango	-	Fumigation by burning of waste material near orchard during Jan. in evening hour and spray of COC 2g/lt water in Feb.		
Hailstorm				
Horticulture				
Apple	-	-	Cover the tree with halenet	
Pear	-	-	Cover the tree with halenet	
Peach	-	-	Cover the tree with halenet	
Plum	-	-	Cover the tree with halenet	
Cyclone	NA	NA	NA	**NA**
Horticulture				

- In regions where the normal maximum temperature is more than 40°C, if the day temperature exceeds 3-4°C above normal for 5-6 days it is defined as heat wave. Similarly, in regions where the normal temperature is less than 40°C, if the day temperature remains 5-6°C above normal for 5-6 days, it is defined as heat wave.
- In regions where normal minimum temperature remains 10°C or above, if the minimum temperature remains 5-6°C lower than normal continuously for 3 days or more it is considered as cold wave. Similarly in regions with normal minimum temperature is less than 10°C, if the minimum temperature remains 3-4°C lower than normal it is considered as cold wave.
- Indicate appropriate crop/soil management measures depending upon the crop and its stage for alleviating the specified stress.

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	Increasing area under fodder production; Collect crop residues and tree fodder to store at safe place, Urea Molasses and vitamin mix., 4% urea treatment of dry fodder.	Utilization of fodder from Perennial & reserve sources, Open grazing in forests and community lands. Fedding of crop residues; use of mangers and chaff cutters, feeding of household waste, Prepare the silage of non-leguminous fodder crops for the scarcity period. Provide Urea Molasses Mineral Block (UMMB) 4% treatment of dry fodder. Provide mineral and vitamin mixture.	Availing insurance, culling of undesirable livestock; Raising of fodder trees, replacement of unproductive animals with improved ones
Drinking water	Storage of water in tanks, Traditional water ponds, rivers	Utilization of stored water, Stall drinking , rivers, traditional water ponds	Rejuvenation of water sources
Health and disease management	Advance preparation with medicines and vaccination, local ethno-pharmaceutical and alternate medicines, keeping of disease resistance breeds	Treatment of affected livestock by mass campaign, Modern veterinary care, veterinary camps , insulation, create smoke during nights in the cattle sheds to protect animals from mosquito and fleabites	Proper veterinary care , awareness, capacity building of locals, health care management
Floods			
Feed and fodder availability	**Not Applicable**	**Not Applicable**	**Not Applicable**
Drinking water			
Health and disease management			
Cyclone	**Not Applicable**	**Not Applicable**	**Not Applicable**
Feed and fodder availability			
Drinking water			
Health and disease management			
cold wave			

Shelter/environment management	Brought back from high hill pasture lands to nearby pastures; restricted open grazing,	Stationary conditions in cowsheds , group living, dry grass flooring, gunny bags on windows, gunny bags wrapped on the belly of milking animals , restricted open grazing during sunny days only, adequate shelter. Prevent water-logging conditions in animal houses. In *Kachha* houses, the floor should be elevated with bricks, Feed straw & other fodder to milch animals with concentrates and protect the young ones from cold.	Open grazing, grazing in open sun , massage of milking animals and other species, hot water bath of animals
Health and disease management	Traditional herbs fed to animals	Warm living conditions, syrup of lassi (curd juice) after roasting fed to animals, avoid exposure to cold and rains/ snow. The prophylactic and preventive measures for the control of diseases should be adopted on the advice of veterinarian. For control of liver flukes, do the deworming of animals.	Open grazing in sunny days and feeding of medicinal herbs. In case of acute problem , veterinary care

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	Surplus storage of poultry feed ; No special preparation s these are kept as backyard activity	Utilization of surplus feed; No impact as these is kept in captivity. Moreover these are kept as backyard and household waste is sufficient for their keeping	Kept as backyard activity Availing Insurance Culling affected birds	Feed can be supplied through fair price shops , cooperatives and the SHGs/ VOs
Drinking water	Storage of water in tanks	Utilize stored water	Kept as backyard activity	Water storage structures can be constructed in collaboration with MNERAGA
Health and disease management	Advance preparation with medicines and vaccination	Mass Vaccination, Locally managed with the help of veterinary care	Kept as backyard activity and local health care is practiced	Collaboration with rural development programmes

Floods	**Not Applicable**			
Cyclone	**Not Applicable**	**Not Applicable**	**Not Applicable**	
Shortage of feed ingredients	**Not applicable**	**Not applicable**	**Not applicable**	**Not applicable**
Drinking water	**Not applicable**	**Not applicable**	**Not applicable**	**Not applicable**
Health and disease management	**Not applicable**	**Not applicable**	**Not applicable**	**Not applicable**
Cold wave				
Shelter/environment management	Restricted open grazing,	Sanitary conditions in cowsheds, gunny bags wrapped around the belly of milking animal, Open grazing restricted to sunny days only, Feed straw and other fodder to milch animal with concentrates and protect the young ones from cold	Kept as backyard activity	
Health and disease management	Local	Local and Veterinary care	Kept as backyard activity	

2.5.3 Fisheries/ Aquaculture

	Suggested contingency measures		
	Before the event[a]	**During the event**	**After the event**
1) Drought			
A. Capture			
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) No. of boats / nets/damaged			
(ii) No.of houses damaged			
(iii) Loss of stock			
(iv) Changes in water quality			
(v) 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			