State: HIMACHAL PRADESH
Agriculture Contingency Plan for District: Hamirpur

1.0 District Agriculture profile				
1.1	Agro-Climatic/Ecological Zone	Western Himalayas, Warm Sub humid (To Humid With Inclusion Of Perhumid) Eco-Region. (14.3)		
	Agro-Climatic Region (Planning Commission)	Western Himalayan Region (I)		
	Agro Climatic Zone (NARP)	Sub- mountain and low hills, Sub-Tropical (HP-1)		
	List all the districts falling under the NARP Zone* (*>50% area falling in the zone)	Southern part of Chamba, Una, Hamirpur, Solan, Bilaspur, Nahan block of Sirmaur, Kullu (S. Part), Dharmashala block of Kangra (S. Part)		
	Geographic coordinates of district	Latitude	Longitude	Altitude
		$31^{o}.52$ To $31^{o}.58$ N	76^{o} 13 To 76^{o} 44 E	400 to 1232 m
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS	Hill Agriculture Research & extension Centre, Dhaulakuan (Sirmaur) HP, 173001, Fax 01704 257421		
	Mention the KVK located in the district with address	Krishi Vigyan Kendra, Bara (HP), Himachal Pradesh, 177 044 Phone 01975-225003 (O)		
	Name and address of the nearest Agromet Field Unit (AMFU, IMD) for agro-advisories in the Zone	Department of Agronomy, Forages and Grassland management, Palampur, 176 062, CSKHPKV, Palampur.		

1.2	**Rainfall**	**Average (mm)**	**Normal onset**	**Normal cessation**
	SW monsoon (June – Sep)	965	3^{rd} week of June	1^{st} week of September
	NE Monsoon (Oct – Dec)	37	3^{rd} week of December	1^{st} week of January
	Winter (Jan – Feb)	100		
	Summer(Mar – May)	122		
	Annual	1225		

1.3 Land use pattern of the district

1.3	Land use pattern of the district (latest statistics)	Geographical area	Net sown 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)	111.8	34.9	18.3	17.4	5.1	10.8	0.0	16.0	6.1	1.7

** Source: Statistical outline of Himachal Pradesh, 2008-09

1.4 Soils of Hamirpur district

Sr. no.	Soil unit	Area ('000 ha)	Percent (%) of total
	1.Shallow to medium deep, loamy soils	1.9	1.7
	2.Medium deep to deep loamy soils	37.9	34.2
	3.Medium deep to deep, loamy, skeletal soils	64.9	58.5
	4.Medium deep, loamy, calcareous soils	6.2	5.6
	Total Area	110.9	100

1.5	Agricultural land use	Area ('000 ha)	Cropping intensity %
	Net sown area	34.9	198%
	Area sown more than once	34.4	
	Gross cropped area	69.3	

*Source: strategic research and extension plan of Hamirpur District, National Institute of Agricultural Extension Management Rajendranagar, Hyderabad- 500 030.

1.6	Irrigation	Area ('000 ha)		
	Net irrigated area	1.8		
	Gross irrigated area	3.5		
	Rainfed area	35.2		
	Sources of Irrigation	**Number**	**Area ('000 ha)**	**Percentage of total irrigated area**
	Canals			
	Tanks	141	0.02	1.5
	Tube wells			
	Bore wells	224		

	Other wells			
	Lift irrigation schemes	50	1.5	93.2
	Micro-irrigation			
	Other sources :			
	Kuhls	27	0.08	5.3
	Khatris (man- made water storage in rocky caves)			
	Total Irrigated Area		3.5	4.8
	Pump sets			
	No. of Tractors	1165	48.51	
	Groundwater availability and use* (Data source: State/Central Ground water Department /Board)	No. of blocks	(%) area	Quality of water
	Over exploited			
	Critical			
	Semi- critical			
	Safe			Good
	Wastewater availability and use			
	Ground water quality	Good, EC<750m mhos/cm at 25^0 C		
* over-exploited: groundwater utilization > 100%; critical: 90-100%; semi-critical: 70-90%; safe: <70%				

1.7 Area under major field crops & horticulture

Sr. No.	Major field crops cultivated	Area ('000 ha)		
		Total	**Irrigated**	**Rainfed**
	Wheat	34.6	0.001	34.6
	Maize	32.7	1.6	31.1
	Rice	1.9	0.9	1.0
	Barley	0.2		0.2
	Pulses	0.2	0.001	0.2
	i. Blackgram	0.3		0.3
	ii. Chickpea	0.3		0.3
	iii. Lentil	0.014		0.014
	Oil seeds			
	i. Toria	0.2		0.2
	ii. Sesamum	0.1		0.1
	iii. Gobhi sarson	0.06		0.06
	iv. Rapeseeds/Mustard	0.04	0.002	0.04

	Horticultural Crops	**Total Area (‘000 ha)**	
	Mango	2.7	
	Citrus	1.4	
	Litchi	0.3	
	Amla	0.2	
	Plum	0.15	
	Guava	0.15	
	Pear	0.1	
	Peach	0.1	
	Pomegranate	0.09	
	Others	0.5	
Other vegetables		2.04	
	Bhendi	0.5	
	Colocasia	0.3	
	Onion	0.2	
	Cauliflower	0.2	
	Cucumber	0.2	
	Bottle gourd	0.12	
	Peas	0.1	
	Bitter gourd	0.103	
	Cabbage	0.1	
	Tomato	0.1	
	Brinjal	0.06	
	Capsicum	0.06	
	Others		
	i. Garlic	0.1	
	ii. Ginger	0.07	
	Total Spices	0.2	

1.8	**Livestock**	**Number (‘000) census**	
	Type of animals	**Status**	**Total Number (‘000)**
	Crossbred cows	Male	2404
		Female	28281
	Local cows	Male	600
		Female	2100
	Total Cattle	Male	3004
		Female	30381

	Buffaloes	Male	9006
		Female	104940
	Goats		30984
	Sheep	Cross bred	8560
		Indigenous	5004
	Pack Animal		952
	Others		134
	Total Livestock		192965
1.9	**Poultry**		4488

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)	

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

B. Culture

	Water Spread Area ('000 ha)	**Yield (t/ha)**	**Production ('000 tons)**
i) **Brackish water** (Data Source: MPEDA/ Fisheries Department)			
ii) **Fresh water** (Data Source: Fisheries Department)	16.1		

1.11 Production and Productivity of major crops (Average of last 5 years: 2004-2009)

Name of crop	**Kharif**		**Rabi**		**Summer**		**Total**	
	Production ('000 MT)	**Productivity (kg/ha)**	**Production ('000 MT)**	**Productivity (kg/ha)**	**Production ('000 t)**	**Productivity (kg/ha)**	**Production ('000 MT)**	**Productivity (kg/ha)**
Maize	76.6	2344					76.6	2344
Rice	4.2	2152					4.2	2152
Wheat			57.1	1651			57.1	1651
Barley			0.2	1199			0.2	1199

Pulses	0.3	564					0.3	564
Chickpea			0.15	689			0.15	689
Mash	0.2	491					0.2	491
Lentil			0.006	429			0.006	429
Oil seeds	0.2	477					0.2	477
Toria	0.1	552					0.1	552
Gobhi sarson			0.04				0.04	
Sesamum	0.03	276					0.03	276
Sarson			0.02				0.02	
Other Temperate fruits								
Mango	2.1	776					2.1	776
Amla	0.14	677					0.14	677
Guava	0.13	889					0.13	889
Litchi	0.13	502					0.13	502
Plum			0.04	2			0.04	2
Citrus	0.8	604					0.8	604
Other fruits	0.17	370					0.17	370
Potato	0.009						0.009	
Other Vegetables								
Bhendi	3.5	7174					3.5	7174
Cauliflower	3.1	14758					3.1	14758
Cucumber	2.9	17494					2.9	17494
Tomato	2.7	29924					2.7	29924
Onion	2.5	10427					2.5	10427
Peas			0.9	78			0.9	78

*Source: Field Survey, 2007-08; District Agriculture Plan Hamirpur , Himachal Pradesh Volume-III Department of Agriculture (H.P.) consulting agency, CSK Himachal Pradesh Agricultural University Palampur-176 062

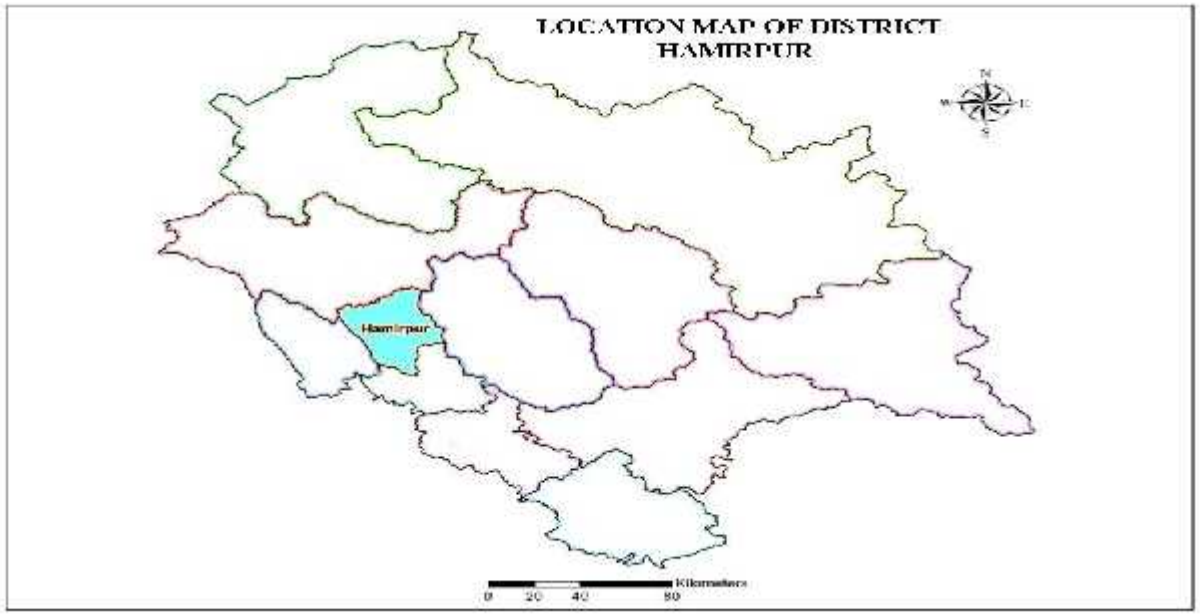
1.12	**Sowing window for 5 major field crops** (start and end of normal sowing period)	**Maize**	**Rice**	**Wheat**	**Barley**	**Toria**
	Kharif- Rain fed	3rd week of June to 1st week of July	3rd week of June to end of June			
	Kharif-Irrigated	3rd week of May to 3rd week of June	3rd week of May to 1st week of July			

	Rabi- Rainfed		3rd week of October to 3rd week of December	3rd week of October to 3rd week of December	
	Rabi-Irrigated		3rd week of October to 4th week of December	4th week of October to 1st week of November	1st week of September to 3rd week of December

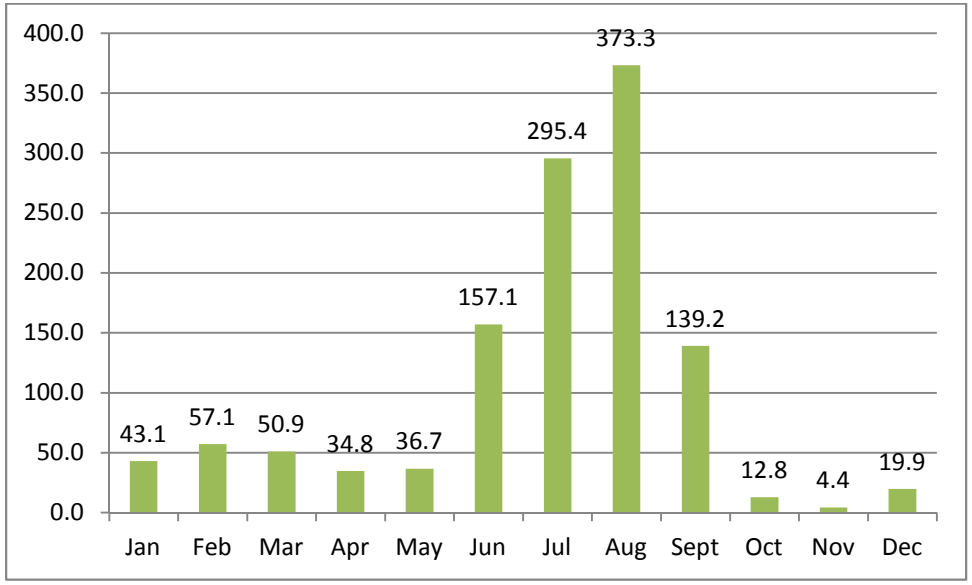
1.13	**What is the major contingency the district is prone to?** (Tick mark)	**Regular**	**Occasional**	**None**
	Drought	√		
	Flood			√
	Cyclone			√
	Hail storm		√	
	Heat wave			√
	Cold wave	√		
	Frost	√		
	Sea water intrusion			√
	Pests and disease outbreak	√		

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 II	Enclosed: Yes
		Soil map as Annexure III	Enclosed: Yes

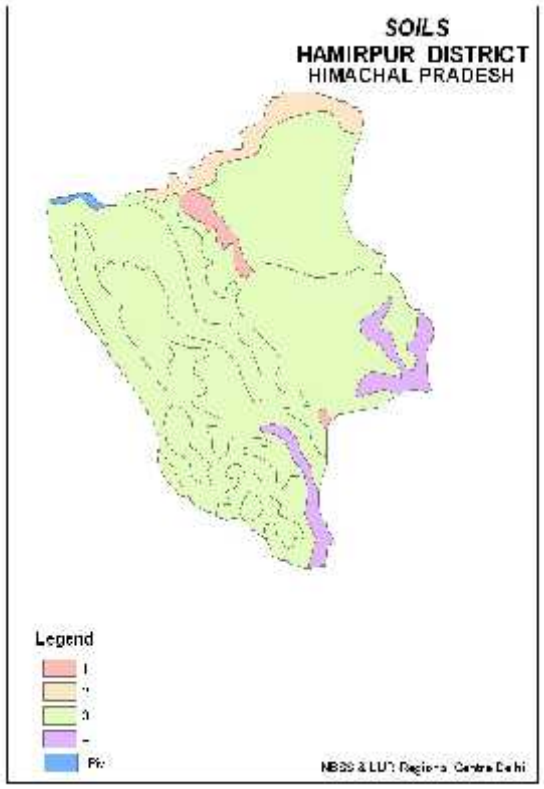
Annexure I



Annexure II Mean annual rainfall (mm)



Annexure III



Soil Unit	Description	Area (ha)
1	Shallow to medium deep, loamy soils	1.9
2	Medium deep to deep loamy soils	37.9
3	Medium deep to deep, loamy-skeletal soils	64.9
4	Medium deep, loamy, calcareous soils	6.2

2.0 Strategies for weather related contingencies
2.1 Drought
2.1.1 Rainfed situation

Condition	**Suggested Contingency measures**				
Early season drought (delayed onset)	**Major Farming situation**	**Crop/cropping system**	**Change in crop/ cropping system**	**Agronomic measures**	**Remarks on Implementation**
Kharif season Delay by 2 weeks 1st week of July	Shallow to deep, loamy soils	Maize Intercropping/mixed cropping of Maize	1.Blackgram/ Finger Millet/Cowpea 2.Intercropping/mixed cropping of Maize + Cowpea/Blackgram /Soybean /Sesame Blackgram: UG-218, Him Mash-1 Finger Millet: Baizu Cowpea: C-475 Soybean: Shivalik Sesame: LTK-4	Proper drainage	
Rabi season Delay by 2 weeks 1st week of January		Wheat	Wheat(Late sown) Wheat: Raj 3777, VL 892 and HS 295, HS 490, HPW 42	Increase seed rate by 25%	

Condition	**Suggested Contingency measures**				
Early season drought (delayed onset)	**Major Farming situation**	**Crop/cropping system**	**Change in crop/ cropping system**	**Agronomic measures**	**Remarks on Implementation**
Delay by 4 weeks 3rd week of July	Shallow to deep, loamy soils	1.Maize	1.Blackgram 2.Intercropping/mixed cropping of Maize (fodder) + Cowpea/ Blackgram/ Soybean/ Sesame Blackgram: UG218, Him Mash-1 Cowpea: C-475 Soybean: Shivalik Sesame: LTK-4	Proper drainage	Seed supply through Department of Agriculture, NSC, SAU, ISOPOM for the supply of good quality seed

3rd week of January		1.Wheat	1.Wheat/ Barley/Oat Wheat: HS295, HS490, Raj3777, HPW42 Barley:HBL276, Dolma Oat: PLP1, Kent	Increase the seed rate and fertilizer by 25%	

Condition	**Suggested Contingency measures**				
Early season drought (delayed onset)	**Major Farming situation**	**Crop/cropping system**	**Change in crop/ cropping system**	**Agronomic measures**	**Remarks on Implementation**
Delay by 6 weeks 1st week of August	Shallow to deep, loamy soils	1.Maize 2.Transplanted /Direct seeded Rice	Mixed cropping of 1.Maize + Cowpea (fodder purpose) 2.Sorghum + Cowpea (fodder purpose) 3.Kharif onion 4.Early cauliflower 5.Early peas Maize: African Tall and desi Cowpea:C-475 Onion: N-53 Cauliflower: Pusa Deepali Pea: Arkel /Matar Ageta	Use 40 kg seed for Maize, 15 kg for Cowpea and 45 kg for Sorghum per hectare.	Seed supply through Department of Agriculture, NSC, SAU, ISOPOM for the supply of good quality seed
1st week of February		Wheat	Barley/Oats/Onion Barley:HBL276, Dolma Oat: PLP1, Kent Onion: N-53, Agrifound Dark Red	Transplanting of onion seedlings during January	

Condition	**Suggested Contingency measures**				
Early season drought (delayed onset)	**Major Farming situation**	**Crop/cropping system**	**Change in crop/ cropping system**	**Agronomic measures**	**Remarks on Implementation**

Delay by 8 weeks 3rd week of August	Shallow to deep, loamy soils	Maize	Toria/ Oat/ Early peas/ Early Cauliflower/Radish Toria: Bhawani Raj3777, HPW42 Oats: Kent -1, Palampur-1 Peas: Matar Ageta, Azad Pea-1, Arkal Radish: Japanese white/Chinese pink Cauliflower: Early Kunwari, Pusa Deepali		Seed supply through Department of Agriculture, NSC, SAU, ISOPOM for the supply of good quality seed
3rd week of February		Wheat	Onion/Potato Onion: N-53 and Agrifound Dark Red Potato: Kufri Chandermukhi.Kufri Jyoti	Transplanting of onion seedlings during January.	

Condition	**Suggested contingency measures**				
Early season drought (Normal onset)	**Major Farming situation**	**Crop/cropping system**	**Crop management**	**Soil nutrient & moisture conservation measures**	**Remarks on Implementation**
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/ crop stand etc.	Upland	Rice (Transplanted)	Gap filling if population is more than 75% otherwise replanting of same crop	Top dressing of Nitrogen, keep the crop weeds free	
		Rice (Direct seeded)	Gap filling if population is more than 50% otherwise re sowing with 25% more seed rate	Top dressing of Nitrogen	
		Maize	Gap filling if population is more than 50% otherwise re sowing with 10% higher seed rate OR Intercropping/mixed cropping of Black gram/ Cowpea/Sesame in rows	Drainage provision in intercropping	ISOPOM
		Wheat	If germination below 50% go for re sowing with 25% more seed rate or Mixed cropping with Brassica (RCC4)	Top dressing of Nitrogen,	ISOPOM

		Barley	If germination below 50% go for re sowing with 25% more seed rate or Shift of crop as fodder	Top dressing of Nitrogen	
	2. Lowland	Rice (Transplanted)	Gap filling	Top dressing of Nitrogen	

Condition	**Suggested contingency measures**				
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period)	**Major Farming situation**	**Crop/cropping system**	**Crop management**	**Soil nutrient & moisture conservation measures**	**Remarks on Implementation**
At vegetative stage	Upland	Rice (transplanted)	Weeding	Foliar spray of urea (2%), mulching with the weeds and in-situ conservation through diverting water from adjoining places	
		Rice (direct seeded)	Reduce population by 10-20% Weeding, Soil mulch		
		Maize		Foliar spray of nutrients and anti transpirants, Mulching with waste materials	
		Wheat		Foliar spray of nutrients, Soil mulch	
	Lowland	Rice		Foliar spry of Nitrogen, Weeding	

Condition	**Suggested contingency measures**				
Mid season drought (long dry spell)	**Major Farming situation**	**Crop/cropping system**	**Crop management**	**Soil nutrient & moisture conservation measures**	**Remarks on Implementation**
	Upland	Rice Transplanted/ direct seeded	Keep the fields free from weeds	Foliar spray of Nitrogen, Life saving irrigation	
		Maize			
		Wheat			
		Blackgram	Weeding	Life saving irrigation , Soil mulch	
		Chickpea			

Condition	Suggested contingency measures				
Terminal drought	**Major Farming situation**	**Crop/cropping system**	**Crop management**	**Rabi Crop planning**	**Remarks on Implementation**
	Upland	Rice	If crop stand is poor then use of crop as fodder	Sowing of Radish/Peas/Toria as catch crop followed by Wheat OR in areas where drought is expected quite often then go for early wheat varieties VL616/VL829/HPW251	
		Maize			
		Wheat	If crop stand is poor then use of crop as fodder	Prepare land for sowing of Rabi crops	
		Blackgram	If no pod setting then use as fodder or incorporate in soil as manure	Sowing of early wheat varieties (VL616/VL829/HPW251) OR Toria/Toria+Gobhi sarson	

2.1.2 Drought- Irrigated situation

Condition	Suggested contingency measures				
	Major Farming situation	**Crop/cropping system**	**Change in crop/cropping system**	**Agronomic measures**	**Remarks on Implementation**
Delayed/ limited release of water in canals due to low rainfall		Rice	Direct seeded rice, Rice : HPR 1156, HPR1028, Sukara dhan, VL421	SRI planting, Foliar N itrogen management instead of top dressing of Nitrogen	
		Maize	Intercropping of Maize + Soybean or Maize + Black gram Maize: Bajaura makka/ Vivek/ QPM9/early composite/KH101		ISOPOM
		Wheat	Wheat + Mustard (RCC4) Wheat : HS490,VL892 Raj3777	Irrigation only at critical stage(CRI, flowering and dough stage) Split application of nitrogen	

Condition	Suggested contingency measures				
	Major Farming situation	**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 catchment	Not applicable				
Lack of inflows into tanks due to insufficient /delayed onset of monsoon	Not applicable				
Insufficient groundwater recharge due to low rainfall	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**	**Flowering stage**	**Crop maturity stage**	**Post harvest**
Rice	Strengthening of field bunds, Drain out the excess water, Topdressing of 20-30 kg N/ha afte removal of excess water, Micro nutrient deficiency correction for Zinc and Fe if need arises	Drain out the excess water, Top dressing of N after water draining, Spray $ZnSO_4$ 0.2% if it is less than 45 days	Drain out the excess water, Harvest the crop at physiological maturity	Storage at warehouse, Covering of produce with polythene sheet Spray common salt at 5% on panicles to prevent germination and spoilage of straw from moulds
Maize	Drain out the excess water as early as possible, Apply 20 kg N + 10 kg K /ha after draining excess water,	Stalk rot control with Calcium Hypochlorite (bleaching powder), top dressing of N but do not mix bleaching powder	Drainage and Cob harvesting from standing crop if physiologically mature	Storage at warehouse, Covering of produce with polythene sheet

	Inter cultivation Loosen and aerate the soil at optimum soil conditions Weeding, Earthing up ,			
Wheat	Drain out the excess water, Add additional dose of nitrogen (25kg/ha)	Complete drainage of water, Control of yellow rust with 0.1% Propiconazole	Complete drainage of water	If rains are continuing take to safe storage place and before winnowing ensure that the moisture is 12-14%
Blackgram	Drain out the excess water, Control of anthracnose with Mancozeb @0.25%	Drain out the excess water,	Provide drainage and selective pod harvest	Storage at warehouse, Covering of produce with polythene sheet
Chickpea	Drain out the excess water		Drain out the excess water	Storage at warehouse, Covering of produce with polythene sheet
Horticulture				
Colocasia	Drain out the excess water	Drain out the excess water , Control of leaf spots and rhizome rot	Drain out the excess water and control of leaf spots and rhizome rot	Take out the rhizomes before storage and sort out the rotten ones and dry in sun
Cauliflower	Drain out the excess water, Split dose of nitrogen when the sky is clear	Drain out the excess water, Use of NPK mixture spray	Drain out the excess water, Control Head rot disease, Harvest the heads which are ready Take off the infested leaves in fields	Immediately market the heads which are ready
Okra	Drain out the excess water, Application of nitrogen	Drain out the excess water,	Drain out the excess water and harvest at physiological maturity	
Cucumber	Drain out the excess water from the base of the plants	Drain out excess water from the base of the plants	Drain out the excess water from the base of the plants,	Storage and immediate transport to market
Onion	Drain out the excess water , Top dressing of 20-30 kg N/ha after relief of excess water	Drain out the excess water, Top dressing of 20-30 kg N/ha after relief of excess water	Drain out the excess water,	Storage and immediate transport to market

Peas	Complete drainage of fields, Seed treatment with Carbendazim @ 2.5g/kg seed for Ashcochyta blight control	Spray of Carbendazim @ 1g/L or Mancozeb 75 WP @ 2.5g/litre of water for Ashcochyta blight, Provide staking	Drainage of fields Spray of Dinocap @5ml or Carbendazim @5g in 10 litres of water for powdery mildew , Harvesting to be delayed till a clear weather	Do not harvest if pods are wet
Heavy rainfall with high speed winds in a short span				
Rice	Strengthening of field bunds	Top dressing of N after draining water		Storage at warehouse, Covering of produce with polythene sheet
Maize	Drain out the excess water , Earthing up operation, Interculture to improve aeration of soil and to control weeds Application of 20-30 kg nitrogen per ha if yellowing takes place	Earthing up and stalking by tying two to three plants together, Stalk rot control with Calcium Hypochlorite (bleaching powder) @ 16.5 kg /ha Top dressing of N, but do not mix bleaching powder	Drain out the excess water Cob harvesting from standing crop if physiologically mature	Storage at warehouse, Covering of produce with polythene sheet
Wheat	Drain out excess water with proper drainage, Interculture to improve aeration of soil and to control weeds, Additional dose of nitrogen (25kg/ha) to remove deficiency of nitrogen (yellowing) caused due to leaching	Complete drainage of water and control of yellow rust with Propiconazole @ 0.1%	Complete drainage of water	After the harvest complete drying process has to be taken to ensure that the fungus development has not taken on the seeds and if rains are continuing take to safe storage place and before winnowing ensure that the moisture is 12-14%
Blackgram	Drain out excess water with proper drainage, Interculture to improve aeration of soil and to control weeds, Control of anthracnose with Mancozeb @ 0.25%	Disease control with Copper oxy chloride/ Mancozeb@ 0.25%, Interculture to improve aeration of soil and to control weeds	Drain out the excess water, Selective pod harvest	Storage at warehouse, Covering of produce with polythene sheet
Chickpea	Drain out excess water, Spray 2% urea to reduce yellowing,			

	Interculture to improve aeration of soil and to control weeds			
Vegetables				
Colocasia	Drain out the excess water, Top dressing of nutrients after removal of excess water		Field drainage and control of leaf spots with Metalaxyl @ 2.5 g/litre of water	Take out the rhizomes, before storage sort out the rotten ones and dry in sun
Cauliflower	Drain out the excess water, Spray of Mancozeb @ 2.5g/L of water and Carbendazim @ 5g/10L for wilting		For Head rot control drainage of fields and preventive spray of Mancozeb @2.5g/L and streptocyclin@1g/L of water and harvest the heads which are ready	Immediately market the heads which are ready
Okra	Drainage and sanitation	Drain the fields, Drench with Carbendazim @ 2.5g/L and Streptocyclin @ 1g/L for virus control	Field drainage and harvesting	Transport the produce with care that the moisture is not too high while packing
Cucumber	Drainage of excess water	For Fruit fly attack use Pheromone traps or Malathion 50EC spray with 50g gur @ 1ml/litre of water Sanitaion	Field drainage	Storage and immediate transportation to market
Onion	Drain out the excess water, For wilting, use Mancozeb @ 2.5g/L of water	For wilting, use Mancozeb @ 2.5g/L of water	Field drainage	Storage and immediate transportation to market
Peas	Complete drainage of fields, To prevent Ashcochyta blight seed treatment with Carbendazim @ 2.5g/kg seed,spray of Carbendazim @ 1g/L or Mancozeb 75 wp @ 2.5g/litre of water.	Complete drainage of fields, For Ashcochyta blight, seed treatment with Carbendazim @ 2.5g/kg seed or spray of Carbendazim @ 1g/L or Mancozeb 75 wp @ 2.5g/L of water.	Drainage of fields, Spray of Dinocap @5ml or Carbendazim @5g in 10 litres of water for powdery mildew and harvesting be delayed till a clear weather	Do not harvest the pods if they are wet
Outbreak of pests and diseases due to unseasonal rains				

Rice	Seed treatment with Carbendazim 50wp or Tricyclazole 75 wp @ 2.5 g /kg seed for leaf blast control,			Storage at warehouse, Covering of produce with polythene sheet , dry the produce up to 10-12% moisture
Maize		Stalk rot control through Calcium Hypochlorite (bleaching powder) @ 16.5 kg /ha, leaf blight control through Mancozeb @0.25%	Stalk rot control through Calcium Hypochlorite (bleaching powder) @ 16.5 kg /ha	Storage at warehouse, Covering of produce with polythene sheet , dry the produce up to 10-12% moisture
Wheat	Spray Chlorpyriphos 20 EC @ 2 lt/ ha at the time of sowing for control of termites in fields	Complete drainage of water and control of yellow rust with Propiconazole @ 0.1%	Loose smut control with Propiconazole 25 EC @ 0.01%	Storage at warehouse, Covering of produce with polythene sheet , dry the produce up to 10-12% moisture
Chickpea	Provide drainage	Control pod borer with Carbaryl @ 2ml/l water	Control pod borer with Carbaryl @ 2ml/l water	
Blackgram	Provide drainage, apply preventive spray of Mancozeb @ 0.25% for blight control	Provide drainage, preventive spray of Mancozeb @ 0.25% for blight control, Control blister beetle with Carbaryl @ 2ml/L water	To protect the crop from leaf spot, apply preventive spray of Mancozeb @ 0.25% for blight	
Vegetables				
Peas	For seed rot control : Drench with Carbendazim and spray of Mancozeb @ 0.25%	Drenching with Carbendazim /Spray of Mancozeb/Metalaxyl as preventive spray @ 0.25%	Spay of Cantaf 2g/l water for powdery mildew control	Market after grading only
Cauliflower/Cabbage	Copper oxy chloride/Mancozeb@ 0.25% as preventive spray		Head rot control with Copper oxy chloride /Mancozeb @ 0.25% as preventive spray and remove diseased leaves, remove the rotten heads,	Immediately harvest the heads
Okra (Kharif)	Provide drainage	Control blister beetle with Carbaryl @ 2g/L water		Storage and immediate transport to market
Cucurbits (Kharif)	Control pumpkin beetle with Carbaryl @ 2g/L water	Carbendazim @ 1g/L for control of foliar diseases, For control of fruit fly installation of pheromone traps		Storage and immediate transport to market

		along with spray of Malathion @ 1ml/L water plus 5 g gur		

2.3 Floods

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

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				
Wheat	Irrigation if available may be applied to combat the effect of high temperature			
Mustard	Irrigation if available may be applied to combat the effect of high temperature			
Horticulture				
Mango	Irrigation if available may be applied to combat the effect of high temperature			
Litchi	Intermittent Irrigation if available may be applied to combat the effect of high temperature			
Cold wave				
Wheat	Light frequent irrigation may be practiced wherever irrigation facilities are available			
Mustard	Light frequent irrigation may be practiced wherever irrigation facilities are available			
Horticulture				
Mango	Light frequent irrigation may be practiced wherever irrigation facilities are available, mulching, thatching and creating smoke screens and lighting of fire is also practiced where irrigation facilities are not available			
Litchi	Light frequent irrigation may be practiced wherever irrigation facilities are available, mulching, thatching and creating smoke screens and lighting of fire is also practiced where irrigation facilities are not available			
Frost				
Wheat	Light frequent irrigation may be practiced wherever irrigation facilities are available			
Mustard	Light frequent irrigation may be practiced wherever irrigation facilities are available			
Horticulture				

Mango	Light frequent irrigation may be practiced wherever irrigation facilities are available, mulching, thatching and creating smoke screens and lighting of fire is also practiced where irrigation facilities are not available
Litchi	Light frequent irrigation may be practiced wherever irrigation facilities are available, mulching, thatching and creating smoke screens and lighting of fire is also practiced where irrigation facilities are not available
Cyclone	Not applicable

2.5 Contingent strategies for Livestock, Poultry & Fisheries

2.5.1 Livestock

	Suggested contingency measures		
	Before the event	**During the event**	**After the event**
Drought			
Feed and fodder availability	Increasing area under fodder crops; collect crop residues, collect tree fodder, use mangers, use chaff cutters , hay storage	Utilization of fodder from Perennial & reserve sources, open grazing in forests and alpine slopes/ community lands, and feeding of crop residues ; use of mangers and chaff cutters , feeding of household waste	Availing Insurance, culling undesirable livestock replacement of unproductive animals with improved ones, raising of fodder trees,
Drinking water	Provision of ground water through bore wells, Storage of water in tanks , traditional water ponds , rivers	Utilization of stored water, stall drinking , rivers , traditional water ponds, ground water	Rejuvenation of water sources
Health and disease management	Procure and stock emergency medicines for important endemic diseases of the area. All the stock must be immunized for endemic diseases of the area. Surveillance and disease monitoring network to be established at Joint Director (Animal Husbandry) office in the district. Adequate refreshment training to be given to VOs, Vet Pharmacists with regard to health and management measures. Procure and stock	Carryout de-worming to all animals entering into relief camps. Identification and quarantine of sick animals, Constitution of Rapid Action veterinary Force, Performing ring vaccination (8 Km radius) in case of any outbreak. Restricting movement of livestock in case of any epidemic. Tick control measures be under taken to prevent tick animals and their treatment. Organize with community, daily lifting of dung from relief camps.	Keep close surveillance on disease outbreak. Undertake the vaccination depending on need. Keep the animal houses clean and spray disinfectants. Farmers should be advised to breed their animals during July to September so that the peak milk production does not coincide with mid summer.

	multivitamins and area specific mineral mixture.		
Floods			
Feed and fodder availability	Increasing area under fodder crops	Evacuation to safer places	Availing Insurance, Culling undesirable Livestock
Drinking water	Storage of water in tanks	Arrange safe drinking water through ground water supply	Arrange safe drinking water
Health and disease management	Advance preparation with medicines and vaccination	Ensuring timely vaccination and availability of veterinary staff, isolation of sick animals, control of ecto parasites and their breeding places	Regular checkup for disease out breaks, unproductive animals with healthy stock.
Cyclone			
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	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 Use of immune - modulators	Provision of fans/shade during warm waves and cold drinking water. Provision of warm housing during cold waves. Use of immune - modulators	Open grazing in sunny days and feeding of medicinal herbs. In case of problem, consult veterinarians. Use of multivitamins and multi minerals. Use of immune - modulators

2.5.2 Poultry

Poultry	**Suggested contingency measures**		
	Before the event	**During the event**	**After the event**
Drought			
Shortage of feed ingredients	Insurance and Integration Establishing feed reserve Bank	Utilizing from feed reserve banks	Availing insurance and Strengthening feed reserve banks.
Drinking water	Roof top rain water harvesting	Sanitation of drinking water	Give sufficient water as per birds requirement
Health and disease management	Culling of sick birds, De-worming and vaccination against infectious and contagious diseases	Mixing of Vit. A.D,E,K, and B-complex including vit.C in drinking water	Hygienic and sanitation of poultry house. Disposal of dead birds by burning/burying with lime powder in pit.

Floods	Not applicable
Cyclone	Not applicable
Heat wave and cold wave	Not applicable

2.5.3 Fisheries

Fisheries	**Suggested contingency measures**		
	Before the event	**During the event**	**After the event**
Drought			
Shallow water in ponds due to insufficient rains/inflows	Water harvesting structures with rain water impounding from catchment areas	Impounding of water through departmental interventions to save fish germplasm	Water harvesting structures with rain water impounding from catchment areas; watershed development planning and implementations.
Floods	Not applicable		
Heat wave and cold wave	Not applicable		