State: ODISHA

Agriculture Contingency Plan for District: JAJPUR

1.0 District Agriculture profile				
1.1	**Agro-Climatic/Ecological Zone**			
	Agro Ecological Sub Region (ICAR)	**Sub humid to humid eastern and south eastern upland**		
	Agro-Climatic Zone (Planning Commission)	**East coast plains and hills**		
	Agro Climatic Zone (NARP)	**North Eastern Costal Plain Zone**		
	List all the districts falling under the NARP Zone* (*>50% area falling in the zone)	**Baleswar, Bhadrak ,Jajpur , Ghasipura and Hatadihi blocks of Keonjhar**		
	Geographic coordinates of district headquarters	**Latitude**	**Longitude**	**Altitude**
		20^o 30' to 20^o 10'	**85^o 40' to 86^o 44'**	**19mtr**
	Name and address of the concerned RRTTS	**RRTTS, Ranital, Bhadrak**		
	Mention the KVK located in the district with address	**KVK, Jajpur, At/Po- Barchana, Jajpur , Pin- 754 081**		
	Name and address of the nearest Agromet Field Unit (AMFU, IMD) for agro-advisories in the Zone	**Ranital, Bhadrak**		

1.2	Rainfall	Normal RF(mm)	Normal Rainy days (number)	Normal Onset (specify week and month)	Normal Cessation (specify week and month)
	SW monsoon (June-Sep):	1168.6	51.0	June 2nd week	Sept. last week
	NE Monsoon(Oct-Dec):	185.1	8.2	Oct. last week	Dec. 2nd week
	Winter (Jan- March)	66.4	2.9	Jan 3rd week	March last week
	Summer (Apr-May)	139.8	6.1	April 1st week	May last week
	Annual	1559.9	73.2		

***Source – SREP,ATMA Jajpur 2010-11**

1.3	Land use pattern of the district (latest statistics)	Geographical area	Cultivated 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)	290	145	72	5	4	4	4	5	-	5

*** Source -Orissa Agril. Statistic 2010-11**

1. 4	Major Soils (common names like red sandy loam deep soils (etc.,)*	Area ('000 ha)	Percent (%) of total
	1. alluvial	55.295	19.07
	2. Saline soil Alluvial	18.419	6.35
	3. Alluvial Red Laterite	156.86	54.1
	4.Red Laterite Alluvial	17.79	6.14
	5. Red Laterite	41.54	14.33

*** mention colour, depth and texture (heavy, light, sandy, loamy, clayey etc) and give vernacular name, if any, in brackets *Source - SREP ATMA Jajpur 2008-09**

1.5	Agricultural land use	Area ('000 ha)	Cropping intensity %
	Net sown area	140	191
	Area sown more than once	128	
	Gross cropped area	268.23	

***Source- Orissa Agricultural statistic 2010-11**

1.6	Irrigation	Area ('000 ha)		
	Net irrigated area	62.38		
	Gross irrigated area	93.75		
	Rainfed area	91		
	Sources of Irrigation	Number	Area ('000 ha)	Percentage of total irrigated area
	Canals		24.054	40.09
	Tanks		-	-
	Open wells		0.720	1.2
	Bore wells		17.928	29.88
	Lift irrigation schemes		7.129	11.88
	Micro-irrigation			
	Other sources (Water harvesting structure)		0.555	0.93
	Total Irrigated Area		59.990	
	Pump sets		*Source – SREP ATMA & line Dept.	
	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	**Nil**	**Nil**	
	Critical	**3**		
	Semi- critical	**2**		
	Safe	**5**		
	Wastewater availability and use	**Nil**		
	Ground water quality			
***over-exploited: groundwater utilization > 100%; critical: 90-100%; semi-critical: 70-90%; safe: <70%**				

***Source- Orissa Agricultural statistic 2010-11 & SREP ATMA Jajpur 2008-09**

1.7 Area under major field crops & horticulture (as per latest figures) (year 2008-09)

1.7	**S.No.**	**Major field crops cultivated**	**Area ('000 ha)**							
			Kharif			***Rabi***				
			Irrigated	**Rainfed**	**Total**	**Irrigated**	**Rainfed**	**Total**	**Summer**	**Grand total**
	1	**Paddy**	**49.92**	**73.96**	**123.88**	**-**	**-**	**-**	**1.53**	**125.41**
	2	**Greengram**	**-**	**-**	**-**	**8.87**	**7.39**	**16.26**	**-**	**16.26**
	3	**Groundnut**	**0.08**	**0.67**	**0.75**	**1.92**	**29.13**	**31.05**	**-**	**31.80**
	4	**Black gram**	**0.15**	**3.21**	**3.36**	**3.07**	**28.09**	**31.16**	**-**	**34.52**
	5	**Jute**	**-**	**1.78**	**1.78**	**-**	**-**	**-**		**1.78**
	Others	**Sugarcane**		**151.72**	**151.72**	**-**	**108.93**	**108.93**		**260.65**

***Source – Orissa Agril. Statisstic2010-11**

	S.No.	Horticulture crops - Fruits	Area (ha)		
			Total	Irrigated	Rainfed
	1	Mango	1756		
	2	Cashewnut	1703		
	3	Citrus	216		
	4	Guava	135		
	5	Banana	462		
		Horticulture crops - Vegetables	Total	Irrigated	Rainfed
	1	Sweet Potato	268		
	2	Potato	780		
	3	Onion	936		
	4	Chilli	3612		
	5	Other vegetable	3910		
		Medicinal and Aromatic crops	Total	Irrigated	Rainfed
	1	Amlla	0.8	0.2	0.6
	2	Aloevera	1.0	-	0.1

		Plantation crops	**Total**	**Irrigated**	**Rainfed**
	1	**Coconut**	**2492**		
	2	**Cashew**	**1703**		
	Others (Specify)	**Eg., industrial pulpwood crops etc.**			
		Fodder crops	**Total**	**Irrigated**	**Rainfed**
	1		**211.5**		
		Total fodder crop area	**211.5**	**201.0**	**10.5**
		Grazing land			
		Sericulture etc			
		Others (specify)			

***Source- SREP ATMA Jajpur 2008-09, Horticulture in Odisha, Directorate of Horticulture 2011-12**

1.8	**Livestock**	**Male (‘000)**	**Female (‘000)**	**Total (‘000)**
	Non descriptive Cattle (local low yielding)			
	Improved cattle			**653.741**
	Crossbred cattle			
	Non descriptive Buffaloes (local low yielding)			**21.061**
	Descript Buffaloes			
	Goat			**255.642**

	Sheep			**67.412**
	Others (Camel, Pig, Yak etc.)			**5.826**
	Commercial dairy farms (Number)			
1.9	**Poultry**	**No. of farms**	**Total No. of birds ('000)**	
	Commercial		**572.152**	
	Backyard			

1.10	**Fisheries (Data source: Chief Planning Officer)**					***Source- SREP ATMA , Jajpur 2008-09 & Dept. of AH**	
	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 (ha)	**Yield (t/ha)**	**Production ('000 tons)**	
	i) Brackish water (Data Source: MPEDA/ Fisheries Department)						
	ii) Fresh water (Data Source: Fisheries Department)			**1894.28**	**2.18**	**511.07MT**	
	Others						

***Source : SREP ATMA , Jajpur 2008-09 & Dept. of fishery**

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

1.11	Name of crop	Kharif		Rabi		Summer		Total		Crop residue as fodder (‘000 tons)
		Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	
Major Field crops (Crops to be identified based on total acreage)										
Crop 1	Paddy	171.99	2072	-	-	3.82	3725	175.81	2092	
Crop 2	Blackgram	1.07	319	9.47	304			10.54	305	
Crop 3	Groundnut	0.93	1240	49.80	1604			50.73	1595	
Crop 4	Jute	19.81	2003	-	-			19.81	2003	
Crop 5	Sugarcane			87.38	64250			87.38	64250	
Others	Greengram			5.12	315			5.12	315	
Major Horticultural crops (Crops to be identified based on total acreage) Area in ha production in MT										
Crop 1	Potato			13.67	10663			13.67	10663	
Crop 2	Onion			9.92	9285			9.92	9285	
Crop 3	Sweet potato			8.49	2275			8.49	2275	
Crop 4	Chilli			0.94	3395			0.94	3395	
Crop 5	Coriander			0.52	488			0.52	488	
Others										

***Source : Horticulture in Odisha, Directorate of Horticulture 2011-12**

1.12	Sowing window for 5 major field crops (start and end of normal sowing period)	Crop 1: Paddy	2: Blackgram	3:Groundnut	4:Jute	5:Sugarcane
	Kharif- Rainfed	May June	June-July	June – July	May	
	Kharif-Irrigated	June – July	June-July	June – July	April – May	
	Rabi- Rainfed	-	Dec – Dec	Nov – Dec		
	Rabi-Irrigated	Dec – Jan	Jan – Jan	Nov – Nov		Dec -Feb

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) Tobacco leaf eating cater pillar in greengram, sheath blight & blast in paddy	√	√	
	Sheath blight in paddy		√	
	Blast in paddy	√		
	Others (specify)			

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

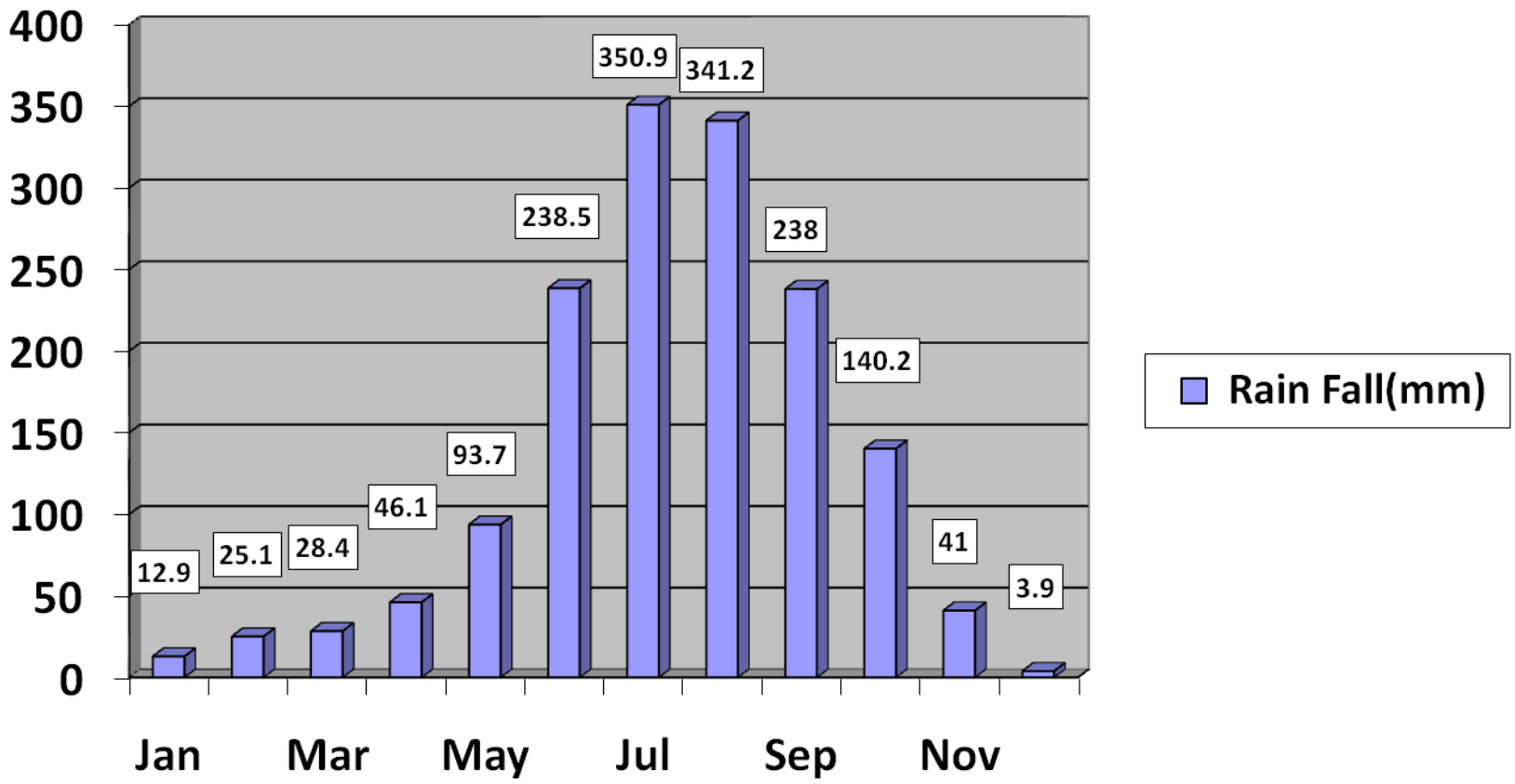
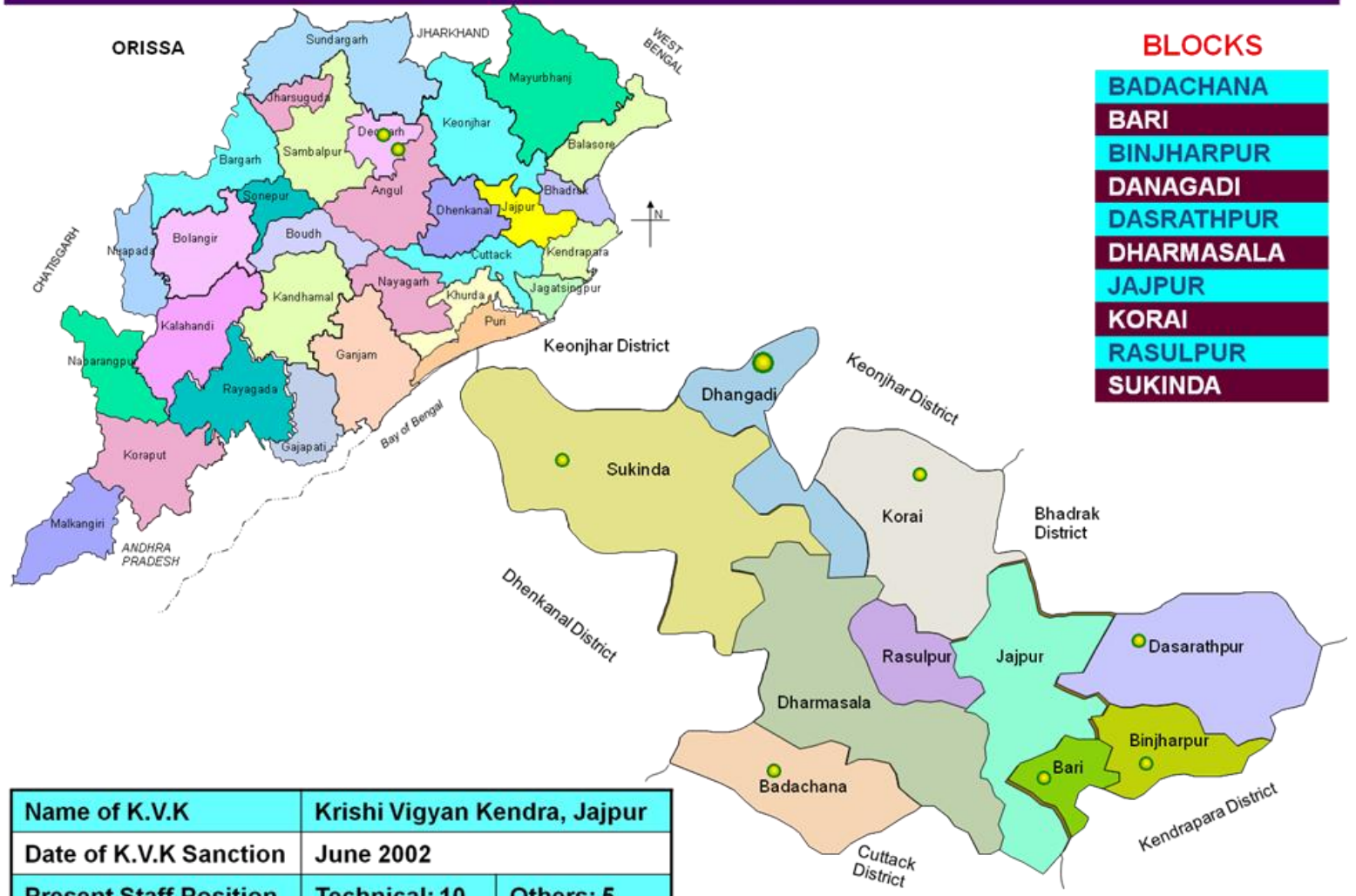
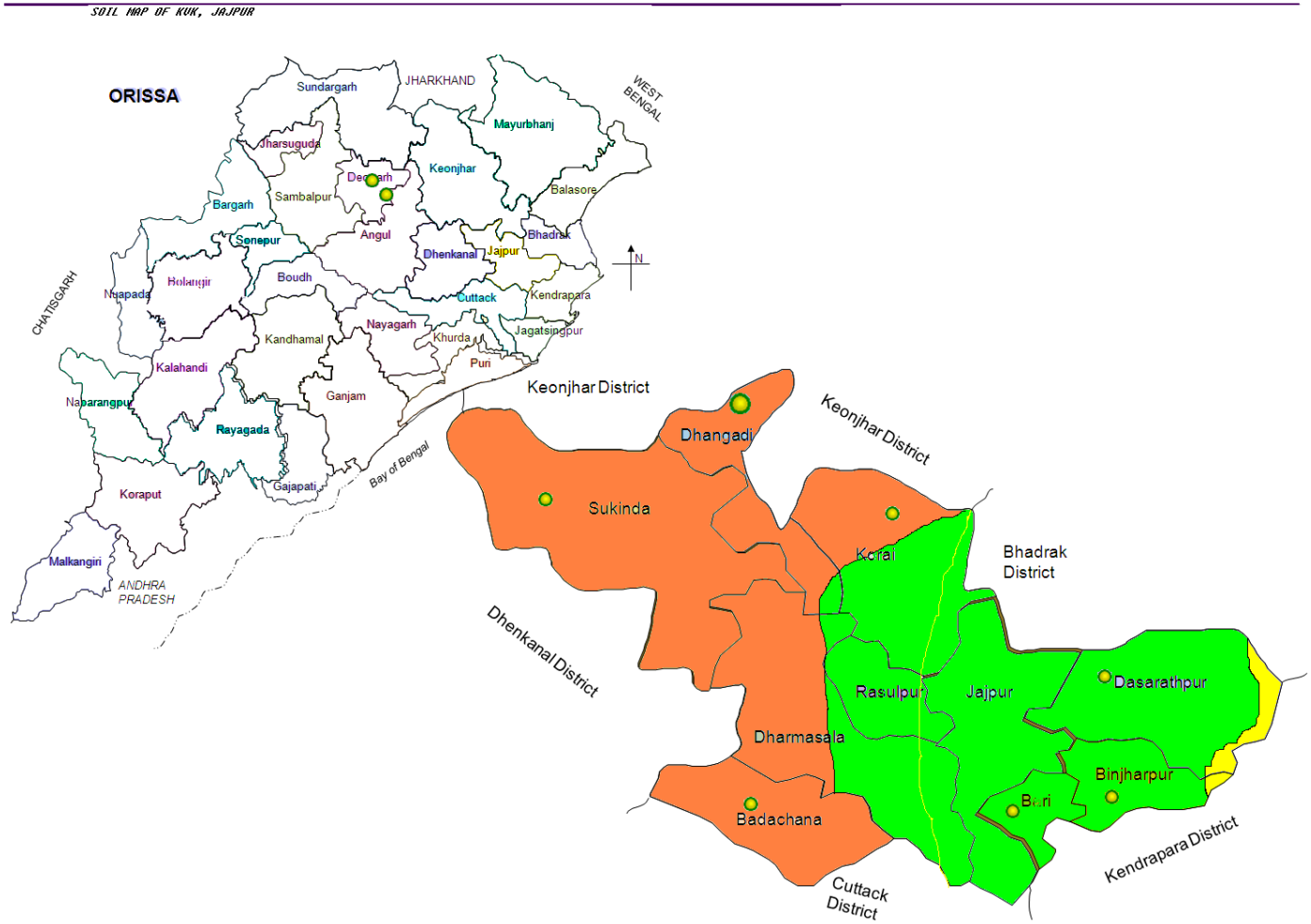


Figure 1 - Average Monthly Rainfall in Jajpur District

JAJPUR DISTRICT AT A GLANCE



Name of K.V.K	Krishi Vigyan Kendra, Jajpur	
Date of K.V.K Sanction	June 2002	
Present Staff Position	Technical: 10	Others: 5
K.V.K e-Mail Address	jajpur_kvk@yahoo.co.in	



Soil Map of District Jajpur

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 [a]**	**Normal Crop / Cropping system [b]**	**Change in crop / cropping system [c] including variety**	**Agronomic measures [d]**	**Remarks on Implement ation [e]**
Delay by 2 weeks (July 1st week)	**1) Farming situation: Red laterite rain fed**	**Paddy** **Maize**	➢ **Paddy(Hira,Patthara,Ban dana, Sneha** ➢ **Maize (Kiran,Pratap, VL-16)**	• **Summer ploughing, inter tillage, conservation furow, in-situ rain water harvest / conservation** • **Strengthening of field bunds in paddy , weeding and hoeing within 20 days to provide dust mulch** • **Rain water harvesting and recycling** • **Life saving irrigation when needed**	**NFSM, CLDP IWMP, NHM, RKVY, ISOPOM**

	2) Farming situation: High rainfall light laterite	**Maize - Fallow Groundnut - Fallow Brinjal – Fallow**	➢ **Maize (Kiran,VL-16, Pratap)** ➢ **Groundnut (Devi, smruti)** ➢ **Brinjal(Green star)**	➢ **Summer ploughing, inter tillage, conservation furrow for in-situ rain water conservation** ➢ **Strengthening field bunds** ➢ **Apply lime @ 5.0qtl + 5.0 ton FYM per ha** ➢ **Sowing across the slope, ridge and furrow planting** ➢ **Broad bed and furrow planting in groundnut** ➢ **Hoeing within 20days to provide soil mulch and weeding** ➢ **Life saving irrigation as needed** ➢ **Application of Oxiflurofen @ 200gm/ha as PE spray or post emergence spray of Quizalofop Ethyle @ 0.05kg ai/ha to groundnut for weed control** ➢ **Hoeing weeding and ridging** ➢ **Organic mulch to brinjal**	**NFSM, CLDP IWMP, NHM, RKVY, ISOPOM**
	3. Rainfed alluvium	**Paddy** **Jute** **Paddy-Blackgram**	➢ **Paddy (Pooja ,Ranidhan, Swarna for low land and Lalat, Konarka for medium land) Blackgram (PU 30,PU 19)** ➢ **Jute (Naveen, Basudev, Baladev) - Blackgram (PU 30,PU 19)**	➢ **Strengthening field bunds , in-situ moisture conservation** ➢ **Raising bund height in paddy** ➢ **Blocking drainage holes** ➢ **Community nursery raising and transplanting 3-4 seedlings per hill** ➢ **weed control, thinning and 2% urea solution spray to jute** ➢ **Basal K & Bo application**	**NFSM, CLDP IWMP, NHM, RKVY, ISOPOM**
	4. Medium rainfall river valley	**Paddy – Groundnut**	➢ **Paddy (Lalata, Surendra, Konark, Swarna, Pratikhya) – Groundnut**	➢ **Strengthening field bunds , in-situ moisture conservation** ➢ **Raising bund height in paddy**	**NFSM, CLDP IWMP,**

	alluvium	**Jute – Groundnut**	**(Devi,Smruti,TMV-2)** ➢ **Jute (Naveen, Basudev) - Groundnut (Devi,Smruti,TMV-2)**	➢ **Higher seed rate to direct seeded paddy** ➢ **Community nursery raising and transplanting 3-4 seedling per hill** ➢ **Blocking drainage hole** ➢ **weed control, thining and 2% urea solution spray to jute** ➢ **Basal K & Bo application**	**NHM, RKVY, ISOPOM**
	5. low laying flood prone	**Local paddy** **Blackgram**	➢ **Paddy (Pooja, Tulasi,Indrabati, Upahar, Varsadhan, Swarna Sub-1,Pratikhya) - Blackgram(PU-30, PU-19)**	➢ **Strengthening field bunds, plugging drainage holes** ➢ **Transplanting 3-4 seedlings per hill** ➢ **Life saving irrigation at critical stages** ➢ **Pulse seed treatment with bio-fertiliser**	**NFSM, CLDP IWMP, NHM, RKVY, ISOPOM**
	6. Saline soil	**Paddy**	➢ **Paddy (Luna Suvarna, Luna Sampad, Lunishree)**	➢ **Strengthening field bonds , checking drainage holes** ➢ **Apply bulky organic manure** ➢ **Transplanting 3-4 seedlings per hill in paddy**	**NFSM, CLDP IWMP, NHM, RKVY, ISOPOM**
Condition			**Suggested Contingency measures**		
Early season drought (delayed onset)	**Major Farming situation[a]**	**Normal Crop/ cropping system[b]**	**Change in crop/cropping system[c]**	**Agronomic measures[d]**	**Remarks on Implementation[e]**

Delay by 4 weeks (up to July 3rd week)	**1) Farming situation: Red laterite rainfed**	**Paddy** **Maize**	➢ **Paddy (KalingaIII, Hira,Pathara Maize(Kiran, VL 16, Pratap)**	• **Summer ploughing, inter tillage, conservation furow, in-situ rain water harvest / conservation** • **Strengthening of field bunds in paddy** • **Weeding and hoeing within 20 days to provide dust mulch** • **Rain water harvesting and recycling** • **Life saving irrigation when needed**	**CLDP, IWMP, ISOPOM NFSM, RKVY NHM**
	2) Farming situation: High rainfall light laterite	**Maize** **Groundnut** **Brinjal**	➢ **Maize (Kiran,VL 16,Pratap)** ➢ **Groundnut (Devi, Smruti)**	➢ **Summer ploughing, inter tillage, conservation furrow for in-situ rain water conservation** ➢ **Strengthening field bunds** ➢ **Apply lime @ 5.0qtl + 5.0ton FYM per ha** ➢ **Sowing across the slope, ridge and furrow planting** ➢ **Hoeing ,weeding and ridging** ➢ **Broad bed and furrow**	

			➢ **Brinjal(Greenstar) + Maize (Kiran, VL16) / Arhar (UPAS-120 /ICPC 87) (4:2)**	**planting in groundnut** ➢ **Hoeing within 20days to provide soil mulch and weeding** ➢ **Application of Oxiflurofen @ 200gm/ha as PE spray or post emergence spray of Quizalofop Ethyle @ 0.05kg ai/ha to groundnut for weed control** ➢ **Organic mulch to brinjal** ➢ **Provide life saving irrigation when needed**	
	3. Rainfed Alluvium	**Paddy** **Jute** **Paddy - Blackgram**	➢ **Paddy (Pooja, Ranidhan, Swarna, Pratikhya Lalata, Konarka, Surendra)** ➢ **Blackgram(PU-30,PU-19)** ➢ **Jute (Naveen ,Baladev, Basudev)**	➢ **Strengthening of field bunds , in-situ moisture conservation , raising bund heights in paddy** ➢ **Blocking drainage holes** ➢ **Community nursery raising and transplanting 3-4 seedling per hill** ➢ **Weed control, thinning and 2% urea solution spray to jute** ➢ **Basal application of K and Bo** ➢ **Provide life saving**	**CLDP, IWMP, ISOPOM NFSM, RKVY NHM**

				irrigation	
	4. Medium rainfall river valley alluvium	**Paddy – Groundnut Jute – Groundnut**	➢ **Paddy (Jogesh,Sidhhant, Lalata, Surendra, Konark, Khandagiri) – Groundnut (Devi,Smruti,TMV-2)** ➢ **Jute (Naveen, Basudev) - Groundnut (Devi,Smruti)**	➢ **Strengthening field bunds , in-situ moisture conservation , raising bund height in paddy** ➢ **Blocking drainage holes** ➢ **Higher seed rate to direct seeded paddy** ➢ **Community nursery raising and transplanting 3-4 seedling per hill** ➢ **Weed control , thining and 2% urea solution spray to jute** ➢ **Provide life saving irrigation**	**CLDP, IWMP, ISOPOM NFSM, RKVY NHM**
	5. low laying flood prone	**Local paddy - Blackgram**	➢ **Paddy (Pooja, Tulasi, Upahar, Varsadhan, Swarna Sub-1) – Blackgram-(PU-30, PU-19)**	➢ **Strengthening field bunds, plugging drainage holes, raising bund height** ➢ **Transplant 3-4 seedling per hill** ➢ **Life saving irrigation at critical stage s** ➢ **Raising community nursery and transplanting** ➢ **Pulse seed treatment with bio fertiliser**	**CLDP, IWMP, ISOPOM NFSM, RKVY NHM**

	6. Ssaline soil	**Paddy**	➢ **Paddy (Luna Suvarna, Luna Sampad, Lunishree)**	➢ **Strengthening field bunds , checking drainage holes** ➢ **Apply bulky organic manure** ➢ **Raising community nursery and transplanting 3-4 seedling per hill** ➢ **Provide life saving irrigation**	**CLDP, IWMP, ISOPOM NFSM, RKVY NHM**

Condition			**Suggested Contingency measures**		
Early season drought (delayed onset)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Change in crop/cropping system[c]**	**Agronomic measures[d]**	**Remarks on Implementation[e]**

Delay by 6 weeks (August 1nd week)	**1) Farming situation: Red laterite rainfed**	**Paddy** **Maize**	➢ **Sesamum (Uma , ,Prachi)** ➢ **Cowpea(Utakala Manika, Pusa Barsati)** ➢ **Ricebean(RBL -6, KRB-1)** ➢ **Radish -Pusa Chetki** ➢ **Arhar (UPAS-120,ICPL-87) + Cowpea (2:2) / Sesamum(2:4)/ Radish(2:2)**	• **Summer ploughing, inter tillage, conservation furrow, in-situ rain water conservation** • **Strengthening of field bunds, weeding and hoeing within 20 days to provide dust mulch** • **Well decomposed FYM in seed rows. Ridge & forrow planting** • **Spraying 2%KCl + 0.1 PPM Boron to pulse crop,** • **Foliar application of 2% urea at pre flowering and flowering stage** • **Rainwater harvesting and recycling as life saving irrigation**	**IWMP, CLDP ISOPOM NHM NFSM RKVY**
	2) Farming situation: High rainfall light laterite	**Maize** **Groundnut** **Brinjal**	➢ **Sesamum (Uma ,Prachi)** ➢ **Cowpea(Utakala Manika, Pusa Barsati)** ➢ **Ricebean(RBL -6,KRB-1)** ➢ **Radish -Pusa Chetki** ➢ **Arhar (Upas 120,ICPL-87) + Cowpea (2:2) / Sesamum(2:4)/**	• **Summer ploughing, inter tillage, conservation furow, in-situ rain water harvest / conservation** • **Strengthening of field bunds, weeding and hoeing within 20 days to provide dust mulch** • **Well decomposed FYM in seed rows. Ridge & forrow planting** • **Rainwater harvesting and recycling as life saving irrigation** • **Spraying 2%KCl + 0.1PPM Boron to pulse crop,** • **Foliar application of 2% urea at preflowering and flowering stage**	**IWMP, CLDP ISOPOM NHM NFSM RKVY**

			Radish(2:2)		
	3. Rainfed alluvium	**Paddy** **Jute** **Paddy - Blackgram**	➢ **Paddy (Jogesh , Khandagiri, Lalata, Surendra, Konarka) - Blackgram (PU-30,PU-19)** ➢ **Jute (Naveen ,Basudev, Baladev) - Greengram(PDM-54,OBGG-52,TARM-2) /**	➢ **Strengthening field bunds , raising bund height in paddy and blocking drainage holes** ➢ **Community nursery raising and transplanting** ➢ **closer spacing and 4-5 seedlings per hill** ➢ **Sowing pregerminated seeds & weed control** ➢ **Spraying 2% urea solution to jute** ➢ **Rain water harvest & life saving irrigation when needed**	**IWMP, CLDP ISOPOM NHM NFSM RKVY**
	4. Medium rainfall river valley alluvium	**Paddy – Groundnut Jute – Groundnut**	➢ **Paddy (Jogesh, Sidhhant, Khandagiri) – Groundnut (Devi,Smruti,TMV-2)** ➢ **Jute (Naveen, Basudev) - Groundnut (Devi, Smruti, TMV-2)**	➢ **Strengthening field bunds , raising bund height in paddy and blocking drainage holes** ➢ **Community nursery raising and transplanting** ➢ **closer spacing and 4-5 seedlings per hill** ➢ **Sowing pregerminated seeds & weed control** ➢ **Spraying 2% urea solution to jute** ➢ **Rain water harvest & life saving irrigation when needed**	**IWMP, CLDP ISOPOM NHM NFSM RKVY**

	5. low laying flood prone	**Local paddy – Blackgram**	➢ **Paddy (Pooja, Tulasi, Indrabati, Upahar, Varsadhan, Swarna Sub-1) – Blackgram-(PU-30, PU-19)**	➢ **Strengthening field bunds, plugging drain-age holes** ➢ **Life saving irrigation at critical stages** ➢ **Raising community nursery and transpla-nting 3-4 seedling /hill** ➢ **Closer spacing to clonal tillers and aged seedlings** ➢ **Apply 50% N as basal** ➢ **Pulse seed treatment with bio-fertiliser**	**IWMP, CLDP ISOPOM NHM NFSM RKVY**
	6. Saline soil	**Paddy**	➢ **Paddy (Luna Suvarna, Luna Sampad, Lunishree)**	➢ **Strengthening field bunds, plugging drain-age holes** ➢ **Life saving irrigation at critical stages** ➢ **Apply bulky organic manure** ➢ **Raising community nursery and transplanting 3-4 seedling /hill** ➢ **Closer spacing to clonal tiller and aged seedlings** ➢ **Apply 50% N as basal**	**IWMP, CLDP ISOPOM NHM NFSM RKVY**
Condition			**Suggested Contingency measures**		
Early season drought (delayed onset)	**Major Farming situation[a]**	**Normal Crop /cropping system[b]**	**Change in crop/cropping system[c]**	**Agronomic measures[d]**	**Remarks on Implement ation[e]**

Delay by 8 weeks (August 3r^{d} week)	**1) Farming situation: Red laterite rainfed**	**Paddy** **Maize**	➢ **Niger (Deomali)** ➢ **Blackgram (T-9,PU-30)** ➢ **Cowpea (Utakala Manika, Pusa Barsati)** ➢ **Sesamum (Uma , Prachi)** ➢ **Horsegram (Urmi)** ➢ **Arhar (Upas 120,ICPL-87) + Cowpea (2:2) / Sesamum(2:4)/ Blackgram/ Horsegram(2:3)**	• **Summer ploughing, inter tillage, in-situ rain water harvest and conservation** • **Strengthening of field bunds, weeding and hoeing within 20 days to provide dust mulch** • **Rainwater harvesting and recycling as life saving irrigation when needed** • **Apply full P & K along with 20% N** • **Well decomposed FYM in seed rows.** • **Spraying 2%KCl + 0.1PPM Boron to pulse crop,** • **Foliar application of 2% urea at preflowering and flowering stage**	**IWMP, CLDP ISOPOM NHM NFSM RKVY**
	2) Farming situation: High rainfall light laterite	**Maize** **Groundnut** **Brinjal**	➢ **Niger (Deomali)** ➢ **Blackgram (T9, PU-30)** ➢ **Cowpea(Utakala Manika, Pusa Barsati)** ➢ **Sesamum (Uma ,Nirmala, Prachi)** ➢ **Horsegram (Urmi)** ➢ **Arhar (Upas 120,ICPL-87) + Cowpea (2:2) / Sesamum(2:4)/ Blackgram/ Horsegram(2:3)**	• **Summer ploughing, inter tillage, in-situ rain water harvest and conservation** • **Strengthening of field bunds, weeding and hoeing within 20 days to provide dust mulch** • **Well decomposed FYM in seed rows.** • **Spraying 2%KCl + 0.1PPM Boron to pulse crop,** • **Foliar application of 2% urea at preflowering and flowering stage** • **Rainwater harvesting and recycling as life saving irrigation when needed**	**IWMP, CLDP ISOPOM NHM NFSM RKVY**
	3. Rainfed alluvium	**Paddy** **Jute**	➢ **Paddy (Jogesh , Khandagiri, Lalata, Surendra, Konarka) - Blackgram (PU-30,T-**	➢ **Strengthening field bunds , raising bund height in paddy and blocking drainage holes** ➢ **Community nursery raising and**	**IWMP, CLDP ISOPOM**

		Paddy - Blackgram	**9)** ➢ **Jute (Naveen ,Basudev, Baladev)** ➢ **Sesamum (Uma,Nirmala, Prachi)** - **Greengram(PDM-54,OBGG-52)**	**transplanting** ➢ **Closer spacing and 4-5 seedlings per hill** ➢ **Sowing pregerminated seeds & weed control** ➢ **Spraying 2% urea solution to jute** ➢ **Rain water harvest & life saving irrigation when needed**	**NHM NFSM RKVY**
	4. Medium Rainfall river valley alluvium	**Paddy – Groundnut Jute – Groundnut**	➢ **Paddy (Jogesh, Sidhhant, Khandagiri) – Groundnut (Devi,Smruti,TMV-2)** ➢ **Jute (Naveen, Basudev) - Groundnut (Devi, Smruti, TMV-2)** ➢ **Sesamum (Uma, Nirmala, Prachi) - Groundnut (Devi,Smruti,TMV-2)**	➢ **Strengthening field bunds ,raising field bund in paddy** ➢ **Higher seed rate to direct sown paddy and weed control** ➢ **Community nursery raising and transplanting, 4-5 seedling per hill** ➢ **Application of 50% N as basal** ➢ **2% urea solution spray to jute** ➢ **Bio fertiliser to pulse and oilseeds along with drainage** ➢ **Rainwater harvesting and life saving irrigation when needed**	**IWMP, CLDP ISOPOM NHM NFSM RKVY**
	5. Low laying flood prone	**Local paddy - Blackgram**	➢ **Paddy (Pooja, Tulasi, Upahar, Varsadhan, Swarna Sub-1) - Blackgram-(PU-30, T-9)**	➢ **Strengthening field bunds raising field bund in paddy** ➢ **Higher seed rate to direct Sown paddy plugging drainage holes** ➢ **Life saving irrigation at critical stages** ➢ **Raising community nursery and**	**IWMP, CLDP ISOPOM NHM NFSM RKVY**

				transplanting 4-5 seedling /hill ➢ Closer spacing to clonal tiller apply 50% N as basal ➢ Pulse seed treatment with bio fertiliser	
	6. Saline soil	**Paddy**	➢ **Paddy (Luna Suvarna, Luna Sampad, Lunishree)**	➢ **Strengthening field bunds , checking drainage holes** ➢ **Apply bulky organic manure** ➢ **Raising community nursery and transplanting 3-4 seedling /hill** ➢ **Closer spacing to clonal tiller** ➢ **Apply 50% N as basal**	**IWMP, CLDP ISOPOM NHM NFSM RKVY**

***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 1st wk	**June 3rd wk**	**July 1st wk**	**July 3rd wk**	**Aug 1st wk**
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**

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 measues[d]**	**Remarks on Implementation[e]**
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination /crop stand etc.	**1) Farming situation: Red Laterite Rainfed**	**Paddy** **Maize**	➢ **FYM:SSP @10:1 placed at seeding point to avoid seedling mortality** ➢ **Resowing if more than 50% population damaged other wise gap filling.** ➢ **Preferring paddy varieties like Hira,Kalinga-III, Pathara** ➢ **Summer ploughing , weeding** ➢ **Seed treatment with $CaCl_2$ for drought tolerance** ➢ **Hoeing and weeding after 20 DAS for in-situ moisture conservation**	➢ **Application of FYM and lime @ 5.0qtl/ha** ➢ **Sowing across the slope** ➢ **Water harvesting and recycling for life saving irrigation** ➢ **Bed -furrow and strip - furrow system of planting** ➢ **Inter tillage and hoeing for dust mulching** ➢ **Strengthening field bunds** ➢ **Blocking seepage holes & gully plugging in paddy**	**IWMP RKVY NHM NFSM**
	2) High rainfall lilght laterite	**Maize** **Groundnut**	➢ **Summer ploughing** ➢ **Application of FYM and lime @5.0qtl/ha** ➢ **Seed treatment with $CaCl_2$ for seed drought tolerance** ➢ **Weed control** ➢ **Resowing if more than 50% population damaged other wise gap filling**	➢ **Water harvesting and recycling** ➢ **Inter tillage and hoeing for dust mulching** ➢ **Bed furrows system of planting** ➢ **Weeding , hoeing, ridging in maize**	**IWMP RKVY NHM NFSM**

			➢ FYM : SSP @ 10:1placed at seeding point to avoid seedling mortality ➢ Sowing in furrows across the slope ➢ Hoeing and weeding after 20 DAS for in-situ moisture conservation		
	3) Rain fed alluvium	Paddy Jute Paddy – Blackgram/ Greengram	➢ Prefer varieties like Lalata, Konarka, Surendra ➢ Sow sprouted seeds ➢ Community nursery raising and transplanting ➢ Application of 2% urea solution to jute ➢ Providing life saving irrigation ➢ Resowing if more than 50% population damaged ➢ FYM : SSP @ 10:1placed at seeding point to avoid seedling mortality sowing in furrows across the slope ➢ Gap filling by Khelua and by clonal propagation ➢ Weed control to check transpiration loss	➢ Strengthening of field bunds ➢ In-situ water harvesting and recycling ➢ Blocking seepage hole ➢ Gully plugging	IWMP RKVY NHM NFSM
	4) Medium rainfall river valley alluvium	Paddy – Groundnut Jute -	➢ Prefer varieties like Jogesh, Sidhhant, Khandagiri ➢ Community nursery raising and transplanting ➢ Sow sprouted seeds	➢ Strengthening of field bunds ➢ Insitu water harvesting and recycling	IWMP RKVY NHM NFSM

			➢ **Application of 2% urea solution to jute** ➢ **Providing life saving irrigation** ➢ **Resowing if more than 50% population damaged** ➢ **FYM : SSP @ 10:1placed at seeding point to avoid seedling mortality sowing in furrows across the slope** ➢ **Gap filling by Khelua and by clonal propagation** ➢ **Weed control to check the transpiration loss**	➢ **Blocking seepage hole** ➢ **Gully plugging**	
	5)Low laying flood prone	**Paddy – Blackgram**	➢ **Prefer varieties like Pratikhya, Ranidhan, Swarna sub-1** ➢ **Community nursery raising and transplanting** ➢ **Providing life saving irrigation** ➢ **Resowing if more than 50% population damaged** ➢ **Gap filling by Khelua and clonal propagation** ➢ **Sow sprouted seeds**	➢ **Strengthening of field bunds** ➢ **In-situ water harvesting and recycling** ➢ **Blocking seepage holes** ➢ **Gully plugging**	**IWMP** **RKVY** **NHM** **NFSM**

	6) Salaine Soil	**Paddy**	➢ **Prefer varieties like Luna Subarna, Luna Sampad, Lunishree** ➢ **Community nursery raising and transplanting 3-4 seedling/hill** ➢ **Providing life saving irrigation** ➢ **Gap filling by Khelua and clonal propagation** ➢ **Application of bulky organic manure/ green leaf manure as basal**	➢ **Strengthening of field bunds** ➢ **In-situ water harvesting and recycling** ➢ **Blocking seepage holes** ➢ **Gully plugging** ➢ **Raising bund height in paddy**	**IWMP** **RKVY** **NHM** **NFSM**

Condition			**Suggested Contingency measures**		
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period)	**Major Farming situation[a]**	**Normal Crop/ cropping system[b]**	**Crop managemt[c]**	**Soil nutrient & moisture conservation measues[d]**	**Remarks on Implementation[e]**

At vegetative stage	**1) Farming situation: Red laterite rain fed**	**Paddy** **Maize**	➢ **Provide dust mulch using rotary peg weeder for hoeing** ➢ **Spray 2% urea and withhold topdressing till receipt of rain** ➢ **Intercropping of arhar with maize (2:2) and paddy(2:5)** ➢ **Spraying 2%KCl and 0.1% Boron to pulses**	➢ **Strengthening bunds with compartmental bunding** ➢ **Insitu water harvesting and recycling for life saving irrigation** ➢ **Plugging drainage lines** ➢ **Sowing across the slope with ridge and furrow method** ➢ **Summer ploughing and application of FYM 5t and lime 5qtl per ha**	**RKVY NFSM ISOPOM NREGS IWMP**
	2) High rainfall light laterite	**Maize** **Groundnut** **Brinjal**	➢ **Provide dust mulch by hoeing with rotary- peg weeder** ➢ **Prune weeds and apply Quizalo-fopethyl 5% EC@ 0.05kg ai/ha at 20 DAS to control weeds in dicots** ➢ **Spray 1% urea to brinjal** ➢ **Top dress after receipt of rain** ➢ **Thin out 25% plants in groundnut and provide organic mulch** ➢ **Organic mulching to wide row crops.** ➢ **Intercropping arhar with maize (2:2) ,groundnut (2:6)** ➢ **bed furrow and ridge furrow system of planting** ➢ **Spraying anti transpirant (Kaoline) to brinjal** ➢ **Spray 2% KCL and 0.1 % Boron to pulses**	➢ **Strengthening bunds with compartmental bunding** ➢ **In-situ water harvesting and recycling for life saving irrigation** ➢ **Sowing across the slope with bed- furrow /ridge -- furrow method** ➢ **Summer ploughing and application of FYM 5t and lime 5qtl Per ha**	**RKVY NFSM ISOPOM NREGS IWMP**

	3) Rain fed alluvium	**Paddy** **Jute** **Paddy - Blackgram/ Greengram**	➢ **No beusuning if crop is more than 45 days old** ➢ **Weed out field without waiting for rain** ➢ **Gap filling with clonal tillers and topdressing after receipt of rain** ➢ **Transplant up to 35 days old seedlings for medium duration paddy** ➢ **Remove weeds in nursery with blast management and life saving irrigation** ➢ **Close transplanting with 4-5 seedlings per hill** ➢ **Spray 2% urea as foliar spray and apply potasic fertiliser**	➢ **Close the drainage lines** ➢ **Strengthening the field bund** ➢ **In-situ water harvesting and recycling for protective irrigation**	**RKVY** **NFSM** **ISOPOM** **NREGS** **IWMP**
	4) Medium rainfall river valley alluvium	**Paddy – Groundnut** **Jute – Groundnut**	➢ **Weed out field without waiting for rain** ➢ **Gap filling with clonal tillers after receipt of rain** ➢ **Transplant up to 35 days old seedlings for medium duration paddy** ➢ **Remove weeds in nursery , blast management and life saving irrigation** ➢ **Close transplanting with 4-5 seedlings per hill** ➢ **Spray 2% urea as foliar spray**	➢ **Close the drainage lines** ➢ **Strengthening the field bund** ➢ **In-situ water harvesting and recycling for protective irrigation** ➢ **Close drainage hole and check seepage losses**	**RKVY** **NFSM** **ISOPOM** **NREGS** **IWMP**
	5) low laying flood	**Paddy – Blackgram/**	➢ **No beusuning to 45 days old paddy crop** ➢ **Weed out field without waiting**	➢ **Close the drainage lines** ➢ **Strengthening the field bunds**	**RKVY** **NFSM** **ISOPOM**

	prone	**Greengram**	**for rain** ➢ **Gap filling with clonal tillers after receipt of rain** ➢ **Community nursery raising** ➢ **Remove weeds in nursery , blast management and life saving irrigation** ➢ **Close transplanting with 4-5 seedlings per hill with up to 35 days old seedling of Swarna, Ranidhan etc.** ➢ **Foliar spray with 2% urea**	➢ **In-situ water harvesting and recycling for protective irrigation**	**NREGS** **IWMP**
	6) Salline soil	**Paddy – Fallow**	➢ **No beusaning if crop is above 45 days old** ➢ **Weed out field** ➢ **Gap filling with clonal tillers after receipt of rain** ➢ **Community nursery raising** ➢ **Remove weeds in nursery, blast management and life saving irrigation** ➢ **Sow sprouted seeds of Luna Subarna, Luna Sampad varieties** ➢ **Planting 3- 4 seedlings /hill** ➢ **Foliar spray with 2% urea** ➢ **Apply bulky organic manure /green leaf manure as basal**	➢ **Close the drainage lines** ➢ **Strengthening the field bund** ➢ **In-situ water harvesting and recycling for protective irrigation** ➢ **Irrigate with good quality water**	**RKVY** **NFSM** **ISOPOM** **NREGS** **IWMP**

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	**1) Farming situation: Red laterite rain fed**	**Paddy** **Maize**	➢ **Inter cropping arhar with paddy (2:5)& maize (2:2)** ➢ **Sprinkling of water to keep micro climate moist** ➢ **Spraying of 2% urea solution** ➢ **Application of life saving irrigation** ➢ **Maize may be harvested for cobs**	➢ **Strengthening of field bunds, blocking drainage and seepage holes,Compartmental bunding** ➢ **In-situ water harvesting and recycling** ➢ **Sowing across the slope with ridge furrow method** ➢ **Application of FYM(5t) and lime(5qtl) per ha** ➢ **Provide dust mulching by hoeing with mechanical weeder**	**RKVY IWMP, NREGS, ISOPOM NFSM**
	2) High rainfall light laterite	**Maize – Fallow Groundnut – Fallow Brinjal - Fallow**	➢ **Inter cropping arhar with paddy (2:5)& maize (2:2)** ➢ **Sprinkling of water to keep micro climate moist** ➢ **Spraying of 1% urea solution to brinjal** ➢ **Spraying 2% KCL and 0.1% boron to pulses and vegetables** ➢ **Application of protective life saving irrigation** ➢ **Maize may be harvested for cobs** ➢ **Spraying anti transpirant**	➢ **Strengthening of field bunds, blocking drainage and seepage holes,Compartmental bunds** ➢ **In-situ water harvest and recycling** ➢ **Sowing across the slope with bed-furrow/ ridge -furrow methods** ➢ **Application of FYM (5t) and lime (5qtl) / ha** ➢ **Provide dust mulching by**	**RKVY IWMP, NREGS, ISOPOM NFSM**

			(Kaoline) to brinjal ➢ Organic mulching to wide row crops	hoeing with mechanical weeder	
	3) Rain fed alluvium	Paddy Jute Paddy – Blackgram/ Greemgram	➢ Provide life saving irrigation ➢ Sprinkling of water to keep micro climate moist ➢ Spraying of 2% urea solutions after weeding the plot ➢ Top dressing with receipt of rain	➢ Strengthening of field bunds ➢ Blocking drainage and seepage hole ➢ In-situ water harvesting in small ditches to recycle as protective irrigation	RKVY IWMP, NREGS, ISOPOM NFSM
	4) Mid rainfall river valley alluvium	Paddy – Groundnut Jute – Groundnut	➢ Provide life saving irrigation ➢ Sprinkling of water to keep micro climate moist ➢ Spraying of 2% urea solutions after weeding the plot ➢ Top dressing with receipt of rain	➢ Strengthening of field bunds ➢ Blocking drainage and seepage holes ➢ Insitu water harvesting in small ditches to recycle as protective irrigation	RKVY IWMP, NREGS, ISOPOM NFSM
	5) Low laying flood prone	Paddy – Blackgram / Greengram	➢ Provide life saving irrigation ➢ Sprinkling of water to keep micro climate moist ➢ Spraying of 2% urea solutions after weeding the plot ➢ Apply potassic fertiliser even through spray solution ➢ Top dressing with receipt of	➢ Strengthening of field bunds ➢ Blocking drainage and seepage holes ➢ Compartmental bunds ➢ In-situ water harvesting in small ditches to recycle as protective irrigation	RKVY IWMP, NREGS, ISOPOM NFSM

			rain		
	6)Saline soils	**Paddy**	➢ **Provide life saving irrigation** ➢ **Spraying of 2% urea solutions after weeding the plot** ➢ **Top dressing with receipt of rain** ➢ **Apply bulky organic manure & green leaf manure as basal**	➢ **Strengthening of field bunds** ➢ **Blocking drainage and seepage holes** ➢ **Compartmental bunds** ➢ **In-situ water harvesting in small ditches to recycle as protective irrigation**	**RKVY IWMP, NREGS, ISOPOM NFSM**

Condition			**Suggested Contingency measures**		
Terminal drought (Early withdrawal of monsoon)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Rabi Crop planning[d]**	**Remarks on Implementation[e]**

	1) Farming situation: Redlaterite rainfed	**Paddy** **Maize**	➢ **Provide protective I life saving irrigation from the harvested rain water preferably in root zones** ➢ **Application of sufficient FYM at sowing to extend period of water availability** ➢ **Maize may be harvested as cobs** ➢ **Harvest paddy at physiological maturity stage** ➢ **Sowing the crop across the slope with ridge and furrow method** ➢ **Strengthening field bunds blocking drainage channel and seepage holes**	➢ **sow / dibble pre-rabi crops like sesamum (Uma, Nirmala,Prachi) , Niger (Deomali), Horsegram(Urmi) in case of complete crop failure**	**RKVY, IWMP, NREGS, ISOPOM NFSM**

	2) High rainfall light laterite	**Maize** **Groundnut** **Brinjal**	➢ **Provide protective life saving irrigation from the harvested rain water preferably in root zones** ➢ **Application of sufficient FYM at sowing to extend period of water availability** ➢ **Maize may be harvested as cobs** ➢ **Sowing the crop across the slope with ridge and furrow method** ➢ **Strengthening field bunds, blocking drainage channes and seepage holes**	➢ **sow dibble prerabi crops like sesamum (Uma, Nirmala,Prachi) , Niger (Deomali), Horsegram(Urmi)incase of complete crop failure**	**RKVY, IWMP, NREGS, ISOPOM NFSM**

	3) Rain fed alluvium	**Paddy** **Jute** **Paddy – Blackgram/ Greengram**	➢ **Provide protective life saving irrigation from the harvested rain water** ➢ **Application of sufficient FYM at sowing to extend period of water availability** ➢ **Harvest paddy at physiological maturity stage** ➢ **Application of potassium fertilizer** ➢ **Strengthening field bunds , cheak runoff and seepage loss and block drainage channels**	➢ **Sow prerabi crops like horsegram (Urmi), Sesamum(Uma, Nirmala,Prachi), Blackgram(T-9, PU-19,PU- 30), Greengram(PDM-54,Sujata)**	**RKVY, IWMP, NREGS, ISOPOM NFSM**
	4) Medium rainfall river valley alluvium	**Paddy – Groundnut** **Jute - Groundnut**	➢ **Provide protective life saving irrigation from the harvested rain water** ➢ **Application of sufficient FYM at sowing to extend periods of water availability** ➢ **Harvest paddy at physiological maturity stage** ➢ **Strengthening field bunds ,cheak runoff and seepage loss and block drainage channels**	➢ **Sow groundnut (Smruti, Devi, TMV-2) as pre rabi crop utilizing residual moisture** ➢ **In extreme case sow horsegram (Urmi), sesamum(Uma, Nirmala,Prachi), blackgram(T-9,PU-30,PU-19)** **Green gram (PDM-54, Sujata) as pre rabi crops**	**RKVY, IWMP, NREGS, ISOPOM NFSM**

	5) Low laying flood prone	**Paddy-Blackgram/ Greengram**	➢ **Provide protective life saving irrigation from the harvested rain water** ➢ **Application of sufficient FYM at sowing to extend period of water availability** ➢ **Harvest paddy at physiological maturity stage** ➢ **Strengthening field bunds , cheak runoff and seepage loss and block drainage channels**	➢ **Paira sowing of blackgram/field pea** ➢ **Sow pre-rabi crops like horsegram (Urmi), sesamum(Uma,Nirmala,Prachi), blackgram(T-9,PU-30,PU-19), Green gram (PDM-54, Sujata)**	**RKVY, IWMP, NREGS, ISOPOM NFSM**
	6) Saline soils	**Paddy-fallow**	➢ **Provide protective life saving irrigation from the harvested rain water** ➢ **Application of sufficient FYM at sowing to extend period of water availability** ➢ **Harvest paddy at physiological maturity stage** ➢ **Strengthening field bunds , cheak runoff and seepage loss and block drainage channels**	➢ **Sow pre-rabi crops – Safflower(A-300), Sunflower(Surya)**	**RKVY, IWMP, NREGS, ISOPOM NFSM**

Notes:

a. **Describe the major farming situation to provide information on growing environment (rainfall and soil information - colour, depth & texture) such as low rainfall shallow red sandy loam soils, high rainfall deep black soils, uplands, medium lands, eroded hill slops etc. tank fed black soils, shallow acid soils, sodic vertisols etc**

b. **Describe the normal crop or cropping system grown in that farming situation including catch crop, sequence, rotation & variety if known**

c. Describe the alternative crop, variety and/or cropping pattern in view of the delay in monsoon and shortening of the growing period including delay in sowing of nurseries in case of paddy.

- **In case of normal onset followed by early season droughts re-sowing may be recommended including variety seed rate etc.**
- **In case of early or mid season dry spells indicate crop management techniques to save standing crop.**
- **In case of terminal drought indicate giving life saving supplemental irrigation, if available or taking up harvest at physiological maturity with some realizable grain/fodder yield etc.**

d. Describe all agronomic practices which help in coping with late planting like increased or decreased spacing, changes in planting geometry, intercropping in case of sole crops, thinning, mulching, spray of anti-transpirants or other chemicals, supplemental irrigation, soil and moisture conservation practices like ridging, conservation furrows, dust mulch etc.

- **In case of early and mid season dry spells indicate moisture conservation techniques to save standing crop.**
- **In case of terminal drought indicate early rabi cropping with suitable crops/varieties with a possibility of giving pre-sowing/come up irrigation etc.**

e. Give details on the source of the breeder seed, in case an alternate crop or variety is suggested as part of the contingency. For agronomic measures, indicate any convergence possible with ongoing central or state schemes like National Rural Employment Guarantee Scheme (NREGS), Integrated Watershed Management Programme (IWMP), Rashtriya Krishi Vikas Yojana (RKVY), National Food Security Mission (NFSM), Integrated Scheme on Oilseeds, Pulses, Oilpalm and Maize (ISOPOM), National Horticulture Mission (NHM), Community Land Development Programme (CLDP) etc., to meet the cost of materials, labour or implements etc. to carry out any field based activity quickly.

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: Rain fed alluv ium	Paddy Paddy – Moong Paddy / Jute – Groundnut	Paddy – groundnut / moong / sunflower Jute – Vegetable / Groundnut- moong Paddy – Sugarcane + moong – Ratoon ➢ Varieties for Moong- TARM-2,PDM-54, OBGG-52 Groundnut- Devi, Smruti,TMV-2 Sunflower – KBSH-1, MSH-1	➢ Raising community nursery ➢ Water harvesting and recycling ➢ Preferring shorter duration paddy (Lalata,Konarka,Surendra in place of Swarma,Pratikhya and Ranidhan and Kandagiri, Jogesh in place of Lalata and Surendra) ➢ Maintaining higher plant stand through closer spacing 3-4 seedling per hill in delayed transplanting of already raised nursery ➢ Planting pregerminated seeds ➢ Growing green gram intercropped with sugarcane ➢ 2% urea spray to jute ➢ Weeding to direct seeded paddy without beusuning ➢ Nitrogen top dressing after receipt of rain / irrigation	RKVY, IWMP, NREGS, ISOPOM

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: Rain fed alluvium	Paddy Paddy – Moong Paddy / Jute – Groundnut	Paddy – Moong Paddy - G.nut Jute - G.nut /- Vegetable ➢ Varieties for Moong- TARM-2, PDM-54, OBGG-52 Groundnut - Devi, Smruti, TMV-2 Sunflower – KBSH-1, MSH-1	➢ Strengthening field bunds, water harvesting and recycling ➢ Application of irrigation at critical crop growth stages ➢ Preferring short duration paddy (var. Lalata, Konarka, Surendra, Khandagiri, Jogesh, Sidhhant) ➢ Opt for SRI method using cono weeder ➢ Direct seeding with pregerminated seeds ➢ Foliar nutrient application ➢ Bed - furrow system of planting in groundnut ➢ Skip row irrigation in vegetables , sprinkler irrigation to groundnut and moong	RKVY, IWMP, NREGS, ISOPOM

Condition			Suggested Contingency measures		
	Major Farming situation[f]	Normal Crop/ cropping system[g]	Change in crop/cropping system[h]	Agronomic measure	Remarks on Implementation[j]
Non release of water in canals under delayed onset of monsoon in catchment	Farming situation: Rain fed alluvium	Paddy Paddy – Moong Paddy / Jute – Groundnut	Paddy – moong/ groundnut Jute- moong/ groundnut ➢ Varieties for Moong- TARM-2, PDM-54, OBGG-52 Groundnut- Devi, Smruti,TMV-2 Sunflower – KBSH-1, MSH-1	➢ Strengthening field bunds ➢ Water harvesting and recycling at critical stages for life saving ➢ Community nursery raising and transplanting 4-5 seedling /hill ➢ Growing shorter duration paddy (varieties, Lalata, Konarka, Surenda and Khandagiri, Jogesh, Sidhhant) ➢ Opt for SRI method using cono weeder ➢ Chemical weed control to direct seeded paddy ➢ Foliar nutrient application ➢ 2% urea spray to jute ➢ Nitrogen top dressing to paddy after receipt of rain	RKVY, IWMP, NREGS, ISOPOM

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	Farming situation: Rain fed Alluvium	Paddy Paddy – Moong Paddy / Jute – Groundnut	Paddy – moong Jute- moong / groundnut ➢ Varieties for Moong- TARM-2, PDM-54, OBGG-52 Groundnut- Devi, Smruti,TMV-2 Sunflower – KBSH-1, MSH-1	➢ Strengthening field bunds , water harvesting and recycling ➢ Transpl anting paddy(Khandagiri, Sidhhant, Jogesh) ➢ Opt for SRI method using cono weeder ➢ Foliar nutrient application(2% urea spray to jute) ➢ Sprinkler irrigation to jute ➢ Bed furrow system of planting groundnut ➢ Skip row irrigation ➢ Application of irrigation at critical growth stages	RKVY, IWMP, NREGS, ISOPOM

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]**
Crop1 (Paddy)	**Provide drainage** **Gap filling for damaged seedling** **Varieties : Swarna sub-1, CR-1014, CR-1018**	**Intermitant drainage**	**Provide drainage** **Apply potassic fertiliser** **Harvest at physiological maturity**	**Drying** **Safe storage** **Early disposal**
Crop2(Blackgram/ Greengram)	**Provide drainage** **Higher seed rate**	**Provide drainage**	**Provide drainage**	**Drying** **Safe storage** **Early disposal**
Crop3(Groundnut)	**Provide drainage**	**Provide drainage**	**Provide drainage**	**Drying** **Safe storage** **Early disposal**
Crop4(Jute)	**Provide drainage**	**Provide drainage**	**Provide drainage**	**Drying** **Safe storage** **Early disposal**
Crop5(Sugarcane)	**It escapes**	**Provide drainage** **Earthing up**	**Provide drainage** **Earthing up**	**Provide drainage** **Safe storage and**

				transportation
Horticulture				
Crop1 (Mango)	**Drainage system should be developed**	**Drainage system should be developed**	**Drainage system should be developed**	**Keeping Fruit in a well ventilated drier place**
Crop2(Cashew)	**Drainage system should be developed**	**Drainage system should be developed**	**Drainage system should be developed**	**Keeping Fruit in a well ventilated drier place**
Crop3(Banana)	**Drainage system should be developed**	**Drainage system should be developed**	**Drainage system should be developed**	**Keeping Fruit in a well ventilated drier place**
Heavy rainfall with high speed winds in a short span[2]	***provide wind break and shelter belt** ***Phosphate application for route development** ***Potasium ,Boron, Silica and Zinc application**			
Crop1(Paddy)	**Provide drainage** **Gap filling for damaged seedling** **Varieties : Swarna sub-1, CR-1014, CR-1018**	**Intermitant drainage**	**Provide drainage** **Apply potassic fertiliser** **Harvest at physiological maturity**	**Drying** **Safe storage** **Early disposal**
Crop2(Blackgram)	**Provide drainage** **Higher seed rate**	**Provide drainage**	**Provide drainage**	**Drying** **Safe storage** **Early disposal**
Crop3(Groundnut)	**Provide drainage**	**Provide drainage**	**Provide drainage**	**Drying** **Safe storage** **Early disposal**
Crop4(Jute)	**Provide drainage**	**Provide drainage**	**Early harvest**	**Drying** **Safe storage** **Early disposal**

Crop5(Sugarcane)	**It escapes**	**Provide drainage** **Earthing up** **Wrapping and propping**	**Provide drainage** **Earthing up** **Wrapping and propping**	**Provide drainage** **Safe storage and transportation** **Wrapping and propping**
Horticulture				
Crop1 (Mango)	**Drainage of excess water**	**Drainage of excess water**	**Drainage of excess water**	**Keeping Fruit in a well ventilated drier place**
Crop2(Cashew)	**Drainage of excess water**	**Drainage of excess water**	**Drainage of excess water**	**Keeping Fruit in a well ventilated drier place**
Crop3(Banana)	**Drainage of excess water**	**Drainage of excess water**	**Drainage of excess water**	**Keeping Fruit in a well ventilated drier place**
Outbreak of pests and diseases due to unseasonal rains				
Crop(Paddy)	**Swarming caterpillar spray cartap hydrochloride @ 1gm/ltr of water. Disease – sheath blight spray hexaconazol @1ml/ltr of water and adopt need based pesticide**	**BPH- Apply thiomethoxam @ 1gm/4ltr of water and adopt need based pesticide**	**Adopt need based pesticide**	**Drying** **Safe storage** **Early disposal**
Crop2(Blackgram)	**Tobacco leaf eating caterpillar- spraying of chloropiriphus @ 2ml/ltr of water at evening**	**Adopt need based pesticide**	**Adopt need based pesticide**	**Drying** **Safe storage** **Early disposal**
Crop3(Groundnut)	**Adopt need based**	**Tikka disease – apply Saf**	**Adopt need based**	**Drying**

	pesticide	**@ 1gm/ltr of water and adopt need based pesticide**	**pesticide**	**Safe storage Early disposal**
Crop4(Jute)	**Semilooper - spray cartap hydrochloride @ 1gm/ltr of water.**	**Adopt need based pesticide**	**Adopt need based pesticide**	**Drying Safe storage Early disposal**
Crop5(Sugarcane)	**Interned Borer- Spraying of cartap hydrochloride @ 1gm/ltr**	**Adopt need based pesticide**	**Adopt need based pesticide**	**Drying Safe storage Early disposal**
Horticulture				
Crop1 (Mango)	**Adopt need based pesticide**	**Adopt need based pesticide**	**Adopt need based pesticide**	**Drying Safe storage Early disposal**
Crop2(Cashewnut)	**Adopt need based pesticide**	**Adopt need based pesticide**	**Adopt need based pesticide**	**Drying Safe storage Early disposal**
Crop3(Banana)	**Adopt need based pesticide**	**Adopt need based pesticide**	**Adopt need based pesticide**	**Drying Safe storage Early disposal**

[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

Condition	Suggested contingency measure[o]			
Transient water logging/ partial inundation[1]	**Seedling / nursery stage**	**Vegetative stage**	**Reproductive stage**	**At harvest**
Crop1 (paddy)	• **Provide drainage** • **Spray clean water to clear up the leaves** • **If seedling damaged go for reseeding by dapog method** • **Community nursery raising** • **Select varieties like Swarna Sub-1 & Sarasa**	• **Provide drainage** • **If damage is more than 50% retransplant or put pregerminated sprouted seeds on puddle soil with higher seed rate and closer spacing** • **Use short duration variety like Lalata , Khandagiri , Konark ,Surendra ,Jogesh Sidhhant .** • **Transplant 40 – 60 days old seedling after flood water recedes with close spacing and 4-5 seedlings per hill** • **Drainage excess water** • **Transplant clonal tillers .do not go for beusaning** • **Apply moderate dose of fertiliser @40:20:20NPK / ha** • **Weeding out and gap filling by clonal tillers** • **Weed out rice field** • **Apply N&K to boost the growth** • **Redistribution of seedling** • **Ridge and forrow planting to horticulture crops**	• **Provide drainage** • **Rinsing the top leaves and floral parts** • **If revibal not possible go for sowing blackgram /greengram** • **Harvest at physiological maturity** • **Paira cropping blackgram**	• **Provide drainage** • **Preventing premature germination by hormonal spray** • **Plan for rabi crop – blackgram, greengram or groundnut** • **Safe storage** • **Threshing by power thresher and drying of the produce**

Crop2- Jute (water logging/ partial irrigated)	• **It escapes**	• **Spray application of N & K fertiliser (2%)** • **Early draining out of flood water**	• **Provide drainage** • **Early harvest at physiological maturity stage** • **planning for rabi groundnut & Blackgram**	• **Provide drainage** • **Safe stacking after drying**

Crop3- Sugarcane	• **It escapes**	• **Provide drainage**
		• **Spraying of 2% urea**
		• **Higher K application**
		• **Application of Carbendazim to previous redrot infected field**
		• **Weed out the infected / diseased shoots to prevent lodging**
			• **Quick drain out of flood water by deep drains**
			• **Early harvest**
			• **Gap filling for ratoon**
			• **Basal fertiliser to be followed by earthing up**
				• **Provide drainage**
				  • **Safe harvest washing & crushing**
				  • **Deep drains for ratoon crop**

Continuous submergence for more than 2 days[2]				
Crop1 (specify)paddy	• **Provide drainage** • **Spray clean water to clear up the leaves** • **If seedlings damaged reseeding** • **Community nursery raising**	• **Provide drainage** • **If damage is more than 50% retrans plant or put pregerminated sprouted seeds on puddle soil with higher seed rate and closer spacing** • **Use short duration variety like Lalata , Khandagiri, Konarka , Surendra , Jogesh Sidhhant etc.** • **Transplant 40 – 60 days old seedling after flood water residues** • **Apply moderate dose of fertiliser**	• **Early drainage** • **Rinsing the top leaves and floral parts** • **If revibal is not possible go for paira cropping blackgram/sowing greengram**	• **Provide drainage** • **Preventing premature germination by hormonal spray** • **Plan for rabi crop – blackgram, greengram or groundnut** • **Drying of the produce**

		@40:20:20NPK / ha • **Weed ing and gap filling by clonal tillers** • **Apply N&K to boost the growth**		
Crop2- Jute	• **It escapes**	• **Spray application of N & K fertiliser (2%)** • **Early draining out of flood water**	• **Provide drainage** • **Early harvest at physiological maturity stage** • **planning for rabi groundnut & Blackgram**	• **Provide drainage** • **Safe stacking after drying**
Crop3- Sugarcane	• **It escapes**	• **Provide drainage** • **Spraying of 2% urea** • **Higher K application** • **Application of Carbendazim to previous red rot infected field** • **Weed out the infected / diseased shoots to prevent lodging**	• **Quick drain out of flood water by deep drains** • **Early harvest** • **Gap filling for ratoon** • **Basal fertiliser to be followed by earthing up**	• **Provide drainage** • **Safe harvest washing & crushing** • **Deep drains for ratoon crop**

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[r]			
	Seedling / nursery stage	Vegetative stage	Reproductive stage	At harvest
Heat Wave[p]				
Crop1(Paddy)	Shading of nursery Sprinkling irrigation	Sprinkling water Soil mulching	Sprinkling water Frequent irrigation	NA
Crop2 (Blackgram)	Sprinkling water	Sprinkling water Soil mulching	Sprinkling water Frequent irrigation	NA
Crop3 (Groundnut)	Sprinkling water	Sprinkling water Soil mulching	Sprinkling water Frequent irrigation	NA
Crop4(Jute)	Frequent irrigation	Frequent irrigation	Frequent irrigation	NA
Crop 5 (Sugarcane)	Frequent irrigation	Frequent irrigation	Frequent irrigation	NA
Horticulture	Frequent irrigation	Frequent irrigation	Frequent irrigation	NA
Crop1 (Mango)	Watering through rose cane	Pitcher Irrigation	Pitcher Irrigation with water spraying	Harsest mature fruits and keep them in well ventilated place
Crop2 (Cashewnut)	Watering through rose cane	Pitcher Irrigation	Pitcher Irrigation with water spraying	Harsest mature fruits and keep them in well ventilated place
Crop3(Banana)	Watering through rose cane	Pitcher Irrigation	Pitcher Irrigation with water spraying	Harsest mature fruits and keep them in well ventilated place

Cold wave[q]	**NA**	**NA**	**NA**	**NA**
Crop1	**NA**	**NA**	**NA**	**NA**
Crop2	**NA**	**NA**	**NA**	**NA**
Crop3	**NA**	**NA**	**NA**	**NA**
Crop4	**NA**	**NA**	**NA**	**NA**
Crop 5	**NA**	**NA**	**NA**	**NA**
Horticulture				
Crop1 (specify)				
Crop2				
Crop3				
Frost				
Crop1	**NA**	**NA**	**NA**	**NA**
Crop2	**NA**	**NA**	**NA**	**NA**
Crop3	**NA**	**NA**	**NA**	**NA**
Crop4	**NA**	**NA**	**NA**	**NA**
Crop 5	**NA**	**NA**	**NA**	**NA**
Horticulture	**NA**	**NA**	**NA**	**NA**
Crop1 (specify)	**NA**	**NA**	**NA**	**NA**
Crop2	**NA**	**NA**	**NA**	**NA**
Crop3	**NA**	**NA**	**NA**	**NA**
Hailstorm	**NA**	**NA**	**NA**	**NA**
Crop1	**NA**	**NA**	**NA**	**NA**
Crop2	**NA**	**NA**	**NA**	**NA**
Crop3	**NA**	**NA**	**NA**	**NA**
Crop4	**NA**	**NA**	**NA**	**NA**
Crop 5	**NA**	**NA**	**NA**	**NA**

Horticulture	**NA**	**NA**	**NA**	**NA**
Crop1 (specify)	**NA**	**NA**	**NA**	**NA**
Crop2	**NA**	**NA**	**NA**	**NA**
Crop3	**NA**	**NA**	**NA**	**NA**
Cyclone				
Crop1(Paddy)	**Drainage Reseeding**	**Cleaning**	**Cleaning**	**Immediate harvest and drying**
Crop2 (Blackgram/ Green gram)	**Escapes**	**Drainage**	**Drainage**	**Immediate harvest and drying**
Crop3 (Groundnut)	**Escapes**	**Drainage**	**Drainage**	**Immediate harvest and drying**
Crop4(Jute)	**Cleanning &earthing**	**Cleanning &earthing**	**Cleanning &earthing**	**Immediate harvest and drying**
Crop 5 (Sugarcane)	**Draiage Wrapping & propping**	**Drainage Wrapping & propping**	**Drainage Wrapping & propping**	**Immediate harvest and drying**
Horticulture				
Crop1 (specify)	**Shift the planting material to safer shed place**	**Stacking in case of smaller plants**	**Stacking in case of smaller plants**	**Immediate harvest of mature fruits**
Crop2	**Shift the planting material to safer shed place**	**Stacking in case of smaller plants**	**Stacking in case of smaller plants**	**Immediate harvest of mature fruits**
Crop3	**Shift the planting material to safer shed place**	**Stacking**	**Stacking**	**Immediate harvest of mature fruits**

[p] **In regions where the normal maximum temperature is more than 40^0C, if the day temperature exceeds 3^0Cabove normal for 5 days it is defined as heat wave. Similarly, in regions where the normal temperature is less than 40^0C, if the day temperature remains 5^0C above normal for 5 days, it is defined as heat wave.**

[q] **In regions where normal minimum temperature remains 10^0C or above, if the minimum temperature remains 5^0C 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 10^0C, if the minimum temperature remains 3^0C lower than normal it is considered as cold wave**

[r] **Indicate appropriate crop/soil management measures depending upon the crop and its stage for alleviating the specified stress. 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	**It is essential to establish fodder bank near forest areas. Provision is also necessary to store surplus crop residues in fodder banks, which can be made available during draught. Excess fodder in flush season can be preserved as hay / silage.**	**Use of unconventional livestock feed such as sugar cane top, sugar cane bagasse, banana plant Crop residues such as cassiatora water hyacinth and other like tree pods and seeds etc. Improving poor quality roughages by ammonia treatment, urea treatment, urea molasses mineral block etc and feeding them.**	
Drinking water	**Preserving water in community tanks and ponds etc for drinking purpose by excavation and sanitization of these resources. In addition, wells (bore wells or**	**Water sources of Temples, Churches, Gurdwaras, Jain temples and Maszids are generally ideal sources during draught.**	

	dug wells) may be constructed ahead of possible event of draught.		
Health and disease management	**Veterinary preparedness with vaccine and medicines.**	**Conducting animal health camps and treating the affected animals Supplementation of mineral and vitamin mixtures**	**Supplementary feeding of remaining livestock and the replacement stock**
Floods			
Feed and fodder availability	• **Procured feeds and fodders should be fed to all animals on the order of priority of animals.**	• **Straws and stoves that got soaked during floods need not be thrown away out right. They can be fed to animals as long as rotting or fungal growth has not set in. Partial drying choffing and sprinkling concentrate mixture can improve intake and utility.**	• **Provision of supplementary feeding (concentrate / Roughage) with vitamin & minerals.**
Drinking water	• **Drinking water be made available to the animals in any kind of clean container available with the farmer.**	• **Drinking water be made available to the animals in any kind of clean container available with the farmer.**	• **Provision of clean drinking water.**
Health and disease management	• **The team should be well equipped with contingent items like bandages, tourniquet ropes, controlling rope, splints, slings, poles and ropes to lift animals. Drugs including painkillers, antiseptics, antibiotics, anti-venom and anti-shock drugs etc. should be adequately available with them.**	• **Keep the animals loose in paddock (sheltered or unsheltered) rather keeping them tethered.** • **Releasing animals from the unnatural and harmful position or situation, stopping bleeding, binding broken limbs, administering painkillers, anti-poison and anti-shock drugs, sedating**	• **Vaccination campaign against common endemic diseases of the areas (like H.S. B.Q, Anthrax etc.) must be taken up urgently. Necessary steps should be taken for the control of non-specific digestive and respiratory infections in consultation of local veterinary**

		difficult animals and even performing euthanasia on hopelessly injured and suffering animals with the consent of their owners.	**personals.** • **Improving shed hygiene especially in the farmers household through cleaning and disinfection**
Cyclone			
Feed and fodder availability	• **Procured feeds and fodders should be fed to all animals on the order of priority of animals.**	• **Straws and stoves that got soaked during floods need not be thrown away out right. They can be fed to animals as long as rotting or fungal growth has not set in. Partial drying choffing and sprinkling concentrate mixture can improve intake and utility.**	• **Provision of supplementary feeding (concentrate / Roughage) with vitamin & minerals.**
Drinking water	• **Drinking water be made available to the animals in any kind of clean container available with the farmer.**	• **Drinking water be made available to the animals in any kind of clean container available with the farmer.**	• **Provision of clean drinking water.**
Health and disease management	• **The team should be well equipped with contingent items like bandages, tourniquet ropes, controlling rope, splints, slings, poles and ropes to lift animals. Drugs including painkillers, antiseptics, antibiotics, anti-venom and anti-shock drugs etc. should be adequately available with them.**	• **Keep the animals loose in paddock (sheltered or unsheltered) rather keeping them tethered.** • **Releasing animals from the unnatural and harmful position or situation, stopping bleeding, binding broken limbs, administering painkillers, anti-poison and anti-shock drugs, sedating difficult animals and even performing euthanasia on**	• **Vaccination campaign against common endemic diseases of the areas (like H.S. B.Q, Anthrax etc.) must be taken up urgently. Necessary steps should be taken for the control of non-specific digestive and respiratory infections in consultation of local veterinary personals.**

		hopelessly injured and suffering animals with the consent of their owners.	• **Improving shed hygiene especially in the farmers household through cleaning and disinfection**
Heat wave and cold wave			
Shelter/ environment management	**1. Green cover (trees plantation, land scaping)** **2. Proper sheltering / housing white painting outside the roof and black painting inside the roof.** **3. Washing / wallowing / sprinkling/ splashing / showering** **4. Provision of cool drinking water (inearthen pitches)** **5. Cooling devices : fans, wet curtains or panels, air cooler if possible.**		
Health and disease management	**1. Feeding Green fodder/ silage/ hay** **2. Provision for night feeding** **3. Grazing only if green pastures/ grass lands available** **4. Graze early in the morning and late in the afternoon**		

[s] based on forewarning wherever available

2.5.2 Poultry

	Suggested contingency measures			Convergence /linkages with ongoing programs, if any
	Before the eventa	**During the event**	**After the event**	
Drought				
Shortage of feed ingredients	**Ensure procurement of feed ingredients sufficient ahead**	**Feed supplementation will be made to the farms**	**Attempt will be made for available of feed ingredient or compound feed to the farmers**	
Drinking water	**Check water source for ensuring sufficient portable water during draught**	**Attempt will be made to provide sanitized drinking water**	**Availability of water will be ensured by digging of bore well**	
Health and disease management	**Procurement of vaccines and medicines and antistress agent.** **Feeding antibiotics** **Procurement of litter materials**	**Continue feeding of antistress agent**		
Floods				
Shortage of feed ingredients	**Ensure procurement of feed ingredients / compound feed**	**Supply the compound feed to the poultry farm under**	**Supply will continued till the situation is under**	

	sufficient ahead as feed supply to the farm will hamper due to submergence of the connecting roads	**submerged area**	**control**	
Drinking water	**Protect the water sources from submergence**	**Attempt will be made to provide sanitized drinking water**	**Water sources will sanitized with bleaching powder or any water sanitizer**	
Health and disease management	**Procurement of vaccines and medicines.** **Feeding antibiotics** **Procurement of litter materials**	**Continue feeding antibiotics** **Prevent entrance of flood water to the shed** **Replace wet litter** **Proper disposal of dead birds if any**	**Disinfection of the farm premises.** **Feeding antibiotics And deworming.** **Replace wet litter** **Disinfection of sheds. Proper disposal of dead birds if any**	
Cyclone				
Shortage of feed ingredients	**Procurement of feed**	**Supply the compound feed to the poultry farm under cyclone affected area**	**Supply will continued till the situation is under control**	
Drinking water	**-**	**Attempt will be made to provide sanitized drinking water**	**Water sources will sanitized with bleaching powder or any water sanitizer**	

Health and disease management	**Procurement of medicine and vaccine**	**Vaccination of birds against different diseases** **Provision should be made for available of sanitized water**	**Water sources will sanitized with bleaching powder or any water sanitizer**	
Shelter/environment management	**Pruning of big trees in the farm.** **Putting curtains on open sides of the shed.** **Procurement of electrical accessories**	**Water proof materials will be supplied to protect the poultry sheds** **Provision of generator should be made to ensure electric supply for brooding of chicks and preparation of feed.**	**Renovation and reconstruction of affected sheds** **Repair of damaged electric connection**	
Heat wave and cold wave				
feed Resource	**Procurement of high protein and low energy diet** **Procurement of medicine, antistress agent and vitamin C and E.**	**Feeding during cooler hour of the day.** **Supplementation of vitamin E and C, antistress agent with water**	**Feeding will be continued with high protein and low energy till heat waves ends and then feeding will be done with normal diet** **Antistress agents will be continued in**	

			drinking water for some days	
Water resource	**Provision should be made for continuous available of water**	**Sufficient cool drinking water with sodium bicarbonate or electrolytes.**	**Availability of cold water will be made for some days**	
Health and disease management	**Procurement of Antistress drugs**	**Supplementation of antistress drug**	**Vaccination of birds against RD**	
Shelter and environment management	**Pruning of big trees in the farm.** **Putting curtains on open sides of the shed.** **Procurement of electrical accessories** **Providing shed to poultry houses.** **Providing proper ventilation.**	**Attempt will be made for cooling of poultry shed by adapting different cooling methods** **Thickness of litter should be reduced** **Ventilation to the house should be increased by providing ceiling fans and exhaust fan**	**Provision should be made to ensure proper ventilation to the house**	
Cold waves				
Feed resources	**Procurement of high energy diet**	**Feed high energy diet**		
Water resources	**Proper water supply will be ensured**			
Health and disease	**Procurement of Antistress drugs and vaccine**	**Feeding of antistress drugs in drinking water**	**Vaccination against IBD and RD**	

management		**Vaccination with fowl pox**		
Shelter and environment management	**Procurement of curtains to cover open sides of the shed.** **Heating arrangement kept ready**	**Close the open sides of the shed by curtain in such a way that ventilation should not be hampered.** **Provide heat if necessary depending on the temperature and age of the birds**	**Remove the curtains.** **Discontinue heating.**	

[a] based on forewarning wherever available

2.5.3. Fisheries/ Aquaculture:

	Suggested contingency measures		
	Before the event	**During the event**	**After the event**
1) Drought			
A. Capture			
Marine	**-**	**-**	**-**
Inland			
(i) Shallow water depth due to insufficient rains/ inflow	**1. Restricted release of water from reservoir.** **2. Supplementary water harvest structures like pond and tanks has to be developed.** **3. Renovation and maintenance of**	**-**	**-**

	existing water harvest structures.		
(ii) Changes in water quality	**1. Prepare to release water into the habitat.**	**1. Mixing of water from the water harvest structure like ponds and tanks into the fish habitat.**	**1. Monitoring the water quality and health of aquatic organisms.**
(iii) Any other	**-**	**-**	**-**
B. Aquaculture			
(i) Shallow water in ponds due to insufficient rains/ inflow	**1. Building deep ditches in culture ponds for shelter of the fish to over come high temperature**	**1. Recharge the ponds with bore well water or water from other sources.** **2. Partial harvesting of the stock to reduce stocking density.** **3. Artificial shelter by putting aquatic floating weeds in 1/3rd area.**	**-**
(ii) Impact of salt load build up in ponds/ change in water quality	**1. Application of organic manure in culture system**	**1. Recharge the ponds with bore well water or water from other sources**	**1. Application of organic manure in culture system**
(iii) Any other	**-**	**-**	**-**

2) Floods			
A. Capture			
Marine	**-**	**-**	**-**
Inland			
(i)Average	**1. Construction of humane shelter.**	**1. Timely broadcast and telecast and**	**1. Relief operation will**

compensation paid due to loss of humane life	**2. Storage of sand filled bags for emergency use.** **3. Repair and maintenance of bundhs.** **4. Preparedness for relief** **5. Insurance coverage provision for life and property**	**other types of announcement warning about the danger level with respect to water level.** **2. Evacuation of people to flood shelter areas.** **3. Relief operation.**	**continue.** **2. Care of health of affected people** **3. Settlement of insurance.** **4. Financial support to other people.**
(ii) No. of boats / nets damaged	**1. The boats has to be secured safely to river/ reservoir banks.** **2. Non operation of fixed bag nets in streams and rivers.** **3. Insurance coverage for nets and boats.**	**1. Checking of the safety of the boats / nets.** **2. An inventory logbook with name of crewmembers should be maintained.** **3. Number of crew and load should be much below the marked tonnage.**	**1. Maintenance of the boats and nets.** **2. Assessment and settlement of insurance.**
(iii) No. of houses damaged	**1. Insurance coverage for houses.**	**-**	**1. Settlement of insurance.**
(iv) Loss of stock	**-**	**-**	**1. Assessment of stock (fish population) and replenishment if stock is depleted.** **2. Habitat restoration for the stock remaining.**
(v) Changes in water quality	**-**	**-**	**1. Application of lime in tanks.** **2. Application of fertilizer.**
(v) Health and diseases	**-**	**-**	**1. Observation of the health status of fish and accordingly control measure should be taken.** **2. Control on transport of brooders and seeds**

B. Aquaculture			
(i) Inundation with flood water	**1.Strengthening and increase in dyke height.** **2. The should be constructed with inlet and out let facility.**	**1. Net enclosure should be provided over the dyke to prevent the escape of fish from pond.**	**1. Repairing and strengthening of dyke if required.**
(ii) Water contamination and changes in water quality	**1. Application of lime.**	**-**	**1. Application of lime and geolite.** **2. Application of Alum.** **3. Application of KmnO4**
(iii) Health and diseases	**1. Application of lime**	**-**	**1. Application of lime and KmnO4.** **2. Assessment of the health status of fish and accordingly control measure should be taken.** **3. Control on transport of brooders and seeds.**
(iv) Loss of stock and inputs (feed, chemicals ets)	**1. Strengthening and increase in dyke height.** **2. Before flood the stock should be harvested and sold in flood prone areas.** **3. Transport of feed and chemicals to safer place.** **4. Purchase of feeds and chemicals on weekly or fortnightly basis.** **5. Insurance coverage for stock.**	**1.Net enclosure should be provided over the dyke to prevent the escape of fish from pond.** **2. Water should be diverted from the main stream.** **3. Sand bags cam be used for protection of dykes.** **4. Storing of feed and chemicals to safer place.**	**1. Stock assessment and restocking with advanced fingerlings or yearling if required.** **2. Repairing of dykes.** **3. Assessment of quality of feed and fertilizer.** **4. Assessment and settlement of insurance.**
(v) Infrastructure damage (pumps,	**1. Construction of flood shelter for pumps, aerators etc.**	**-**	**1. Repairing of pumps, aerators if required.** **2. Repairing of damaged hut.**

aerators, huts etc.)			
(vi) Any other	**-**	**-**	**-**

3. Cyclone/ Tsunami			
A. Capture			
Marine			
(i)Average compensation paid due to loss of fishermen lives	**1. Repeated broadcast and telecast of warning.** **2. Sea venture should be avoided** **3. Insurance coverage for lives of fishermen.**	**1. Provision of relief.** **2. Evacuation of people to safer areas.**	**1. Assessment and settlement of insurance.**
(ii) No. of boats / nets damaged	**1. The boats has to be secured safely to river/ reservoir banks.** **2. Insurance coverage for nets and boats.**	**1. Checking of the safety of the boats / nets.** **2. An inventory logbook with name of crewmembers should be maintained.**	**1. Maintenance of the boats and nets.** **2. Assessment and settlement of insurance.**
(iii) No. of houses damaged	**1. Insurance coverage for houses.**	**-**	**1. Settlement of insurance.**
Inland			
B. Aquaculture			
(i) Over flow/ flooding of ponds	**1.Strengthening and increase in dyke height.** **2. The should be constructed with inlet and out let facility.**	**1. Net enclosure should be provided over the dyke to prevent the escape of fish from pond.**	**1. Repairing and strengthening of dyke if required.**
(ii) Changes in water			

quality (fresh water / brackish water ratio)			
(iii) Health and diseases	**-**	**-**	**1. Application of lime and KmnO4.** **2. Assessment of the health status of fish and accordingly control measure should be taken.** **3. Control on transport of brooders and seeds.**
(iv) Loss of stock and inputs (feed, chemicals ets)	**1. Strengthening and increase in dyke height.** **2. Transport of feed and chemicals to safer place.** **3. Insurance coverage for stock.**	**1.Net enclosure should be provided over the dyke to prevent the escape of fish from pond.** **2. Storing of feed and chemicals to safer place.**	**1. Stock assessment and restocking with advanced fingerlings or yearling if required.** **2. Repairing of dykes.** **3. Assessment of quality of feed and chemicals.** **4. Assessment and settlement of insurance.**
(v) Infrastructure damage (pumps, aerators, shelters/ huts etc.)	**-**	**-**	**1. Repairing of pumps, aerators if required.** **2. Repairing of damaged hut.**
(vi) Any other	**-**	**-**	**-**
4. Heat Wave and Cold Wave			
A. Capture			
Marine	**-**	**1. During hot waves night fishing should be done.** **2. During hot waves preservation by cold chain should be increased.**	**-**
Inland	**-**	**1.During hot waves night fishing should**	**-**

		be done. **2. Preservation by cold chain should be increased during hot waves.**	
B. Aquaculture			
(i) Change in pond environment	**1. During hot waves adequate water depth should be maintained.**	**1. During hot waves mixing of water with fresh water should be done.** **2. The culture system should be provided with aeration to avoid oxygen depletion due to high temperature during hot waves.** **3. Partial harvesting can be done to avoid loss of crop.**	**-**
(ii) Health and disease management	**1. Application of lime and turmeric.**	**1. Feeding should be stopped.** **2. If cold waves persists EUS outbreak takes place**	**1. Application of CIFAX to control EUS disease in fish.**
(iii) Any other	**-**	**-**	**-**

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 1st wk	**June 3rd wk**	**July 1st wk**	**July 3rd wk**	**Aug 1st wk**
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**

DISTRICT CONTINGENT PLAN

KRISHI VIGYAN KENDRA, JAJPUR

भाकृअनुप
ICAR

ORISSA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY
BHUBANESWAR - 3