

State: ANDHRA PRADESH

Agriculture Contingency Plan for District: SRIKAKULAM

1.0 District Agriculture profile

1.0 District Agriculture profile					
1.1	Agro-Climatic/ Ecological Zone				
	Agro Ecological Sub Region (ICAR)	Eastern coastal plain Hot Sub Humid to Semi Arid Sub Region (18.1)			
	Agro-Climatic Region (Planning Commission)	East Coast Plains and Hills region (XI)			
	Agro Climatic Zone (NARP)	North Coastal Zone (AP-2)			
	List all the districts or part thereof falling under the NARP Zone	Srikakulam, Vizianagaram, Visakhapatnam (excluding tribal hill areas) and upland areas of East Godavari			
	Geographic coordinates of district	Latitude		Longitude	Altitude
		18° 20'and 19° 10' N		83° 51' and 84° 51' E	
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS	RARS, Anakapalle and Agricultural Research Station, Ragolu.			
	Mention the KVK located in the district	KVK , Amadalavalasa , PIN 532182.			
1.2	Rainfall	Normal RF(mm)	Normal Rainy days (no)	Normal Onset (Specify week and month)	Normal Cessation (specify week and month)
	SW monsoon (June-Sep):	705	41	June 2 nd Week	1 st week of October
	NE Monsoon(Oct-Dec):	277	9	October 2 nd Week	December 4 th Week
	Winter (Jan- March)	47	2		
	Summer (Apr-May)	133	4		
	Annual	1162	56		

1.3	Land use pattern of the district (latest statistics)	Geographical Area	Forest area	Land under non-agricultural use	Permanent Pastures	Cultivable wasteland	Land under Misc. tree crops and groves	Barren and uncultivable land	Current fallows	Other fallows
	Area (ha) 000ha	583.7	68.6	100.3	0.9	0.7	7.4	48.4	14.74	34.7

1. 4	Major Soils (common names like shallow red soils etc.,)	Area ('000 ha)	Percent (%) of total
	1. Red soils	344	58.6
	2. Brown forest soils	85	14.6
	3. Alluvial soils	61	10.31
	4. Black soils	30	5.11
	5. Sandy soils	13	2.21
	6.other soils	50	9.17
	Total	549	100

1.5	Agricultural land use	Area ('000 ha)	Cropping intensity %
	Net sown area	322.0	140 %
	Area sown more than once	128.8	
	Gross cropped area	450.9	

1.6	Irrigation	Area ('000 ha)		
	Net irrigated area	186.9		
	Gross irrigated area	216.4		
	Rainfed area	125.4		
	Sources of Irrigation	Number	Area ('000 ha)	Percentage of total irrigated area
	Canals		118.251	54.6
	Tanks	8200	63.961	29.5
	Open wells		14.986	6.9
	Bore wells	24000	12.708	5.8
	Lift irrigation	45	0.891	0.41
	Micro-irrigation		12.708 (Covered under Bore well and open well sources)	-
	Other sources		5.670	2.6
	Total Irrigated Area		216.4	100.0
	Pump sets	5317		
	No. of Tractors	2430		
	Groundwater availability and use* (Data source: State/Central Ground water Department /Board)	No. of blocks/ Tehsils	(%) area	
	Over exploited	2		
	Critical	Nil		
	Semi- critical	01		
	Safe	35		
	Wastewater availability and use	-		
	Ground water quality	Good		
*over-exploited: groundwater utilization > 100%; critical: 90-100%; semi-critical: 70-90%; safe: <70%				

Area under major field crops & horticulture etc.

1.7			Area (*000 ha)					
			Kharif		Rabi		Summer	Total
		Major Field Crops cultivated	Irrigated	Rainfed	Irrigated	Rainfed		
	1	Paddy	173.961	30.699	3.467	-		208.122
	2	Maize		9.369	9.023			18.392
	3	Groundnut		4.517	4.875	-		9.392
	4	Sugarcane	5.831	-	-	-		5.831
	5	Mesta		2.5	-	-		2.5
	6	Cotton	-	8.585	-	-		8.585
	7	Green gram		-	-	32.659		32.659
	8	Blackgram		-	-	44.763		44.763
		Horticulture crops – Fruits	Total area		Irrigated		Rainfed	
	1	Mango	13.097				22.9	
		Horticultural crops – Vegetables	Total area		Irrigated		Rainfed	
	1	Chillies	3.2					
	2	Onion	1.7					

1.8	Livestock	Male ('000)	Female ('000)	Total ('000)			
	Non descriptive Cattle (local low yielding)	168.0	262.6	430.6			
	Crossbred cattle	144.3	234.2	378.5			
	Non descriptive Buffaloes (local low yielding)	38.8	86.5	125.3			
	Graded Buffaloes						
	Goat			185.9			
	Sheep			484.5			
	Others (Camel, Pig, Yak etc.)			21.0			
	Commercial dairy farms (Number)						
1.9	Poultry	No. of farms	Total No. of birds ('000)				
	Commercial		739412				
	Backyard		1719948				
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)	
		20016	nil	443 / 3049	0 / 85333	1136 / 1	-
	No. Farmer owned ponds		No. of Reservoirs		No. of village tanks		

	ii) Inland (Data Source: Fisheries Department)	21	-	238
	B. Culture			
		Water Spread Area (ha)	Yield (t/ha)	Production ('000 tons)
	i) Brackish water (Data Source: MPEDA/ Fisheries Department)	260	0.001	0.135
	ii) Fresh water (Data Source: Fisheries Department)	168	0.003	0.514
	Others		0.000	40.448

1.11	Production and Productivity of major crops (Average of last 5 years)	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										
1	Paddy	861459	4136	16842	5337			878301	9473	-
2	Maize	60545	4821	90682	7077			151227	11898	-
3	Groundnut	2785	1274	6643	1457			9428	2731	-
4	Cotton	10238	1538	-	-			10238	1538	-
5	Sugarcane	376248	70066	-	-			376248	70066	-
6	Greengram			21917	668			21917	668	-
7	Blackgram			32890	698			32890	698	-
Major Horticultural crops										
1	Mango							108.3	8237	
Horticultural crops – Vegetables										
1	Chillies							5.1	1750	

2	Onion							29.0	17000	
Plantation & Spice crops										
1	Coconut							13.1	625	
2	Cashew							45.0	30000	
3	Arecanut & Oil Palm							6.8	4667	

1.12	Sowing window for 5 major field crops (start and end of normal sowing period)	Paddy	Groundnut	Mesta	Greengram	Blackgram
	Kharif- Rainfed		June 2 nd Week to July 4 th Week	May 2 nd week to July 2 nd Week	June 1 st week to June 4 th week	June 1 st week to June 4 th week
	Kharif-Irrigated	July 1 st Week to July 4 th Week		-		
	Rabi- Rainfed	-	-	-	November 1 st to Dec2 nd week	November 1 st to Dec2 nd week
	Rabi-Irrigated	Dec 4 th week to January 2 nd week	Oct 4 th Week to Dec 4 th Week	-		

1.13	What is the major contingency the district is prone to? (Tick mark and mention years if known during the last 10 year period)	Regular	Occasional	None
	Drought		√	
	Flood	√		
	Cyclone		√	
	Hail storm			√
	Heat wave			√
	Cold wave			√
	Frost			√
	Sea water intrusion			√
	Pests and diseases (specify)			

1.14	Include Digital maps of the district for	Location map of district within State as Annexure 1	Enclosed: Yes
		Mean annual rainfall as Annexure 2	Enclosed: Yes
		Soil map as Annexure 3	Enclosed: Yes

Annexure - I

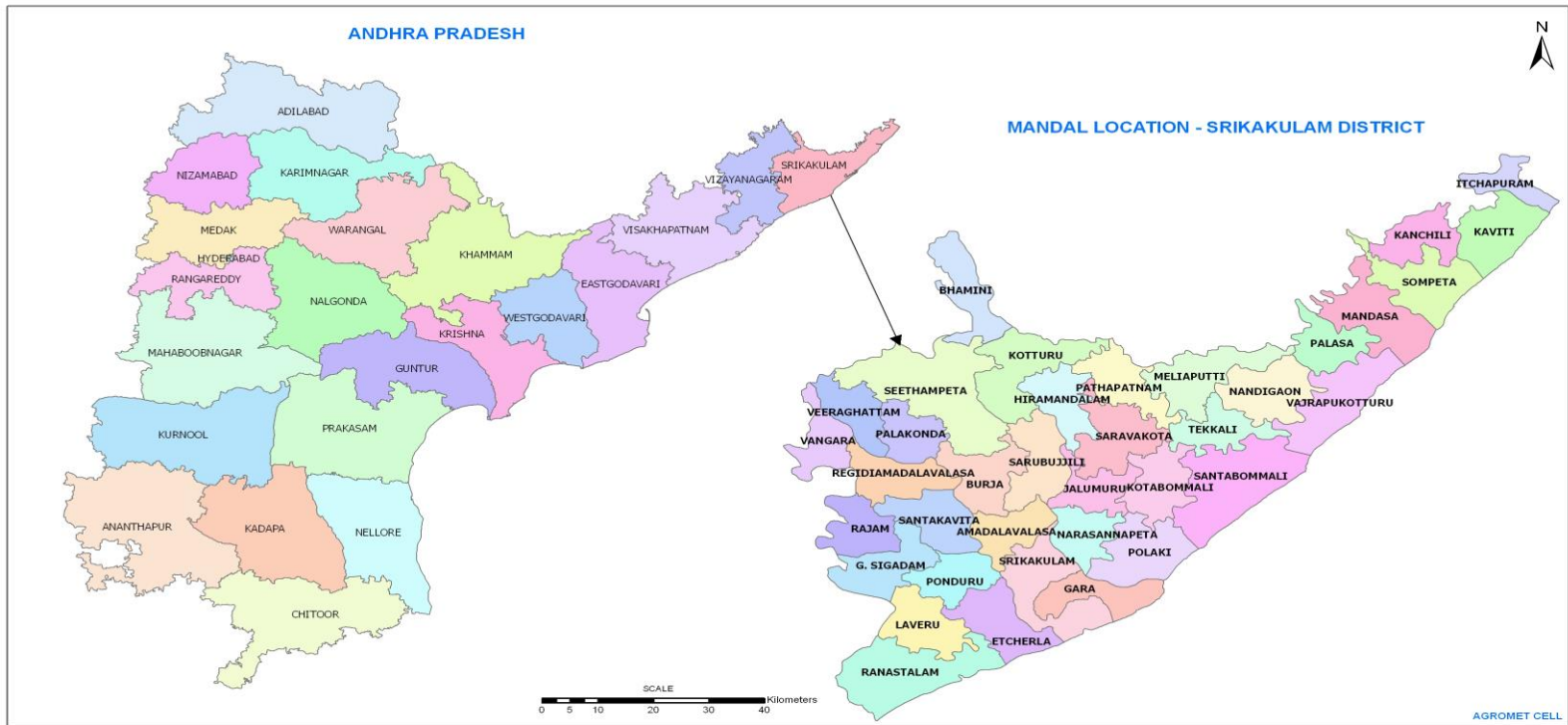


Fig: Location of the Srikakulam district

Annexure - II

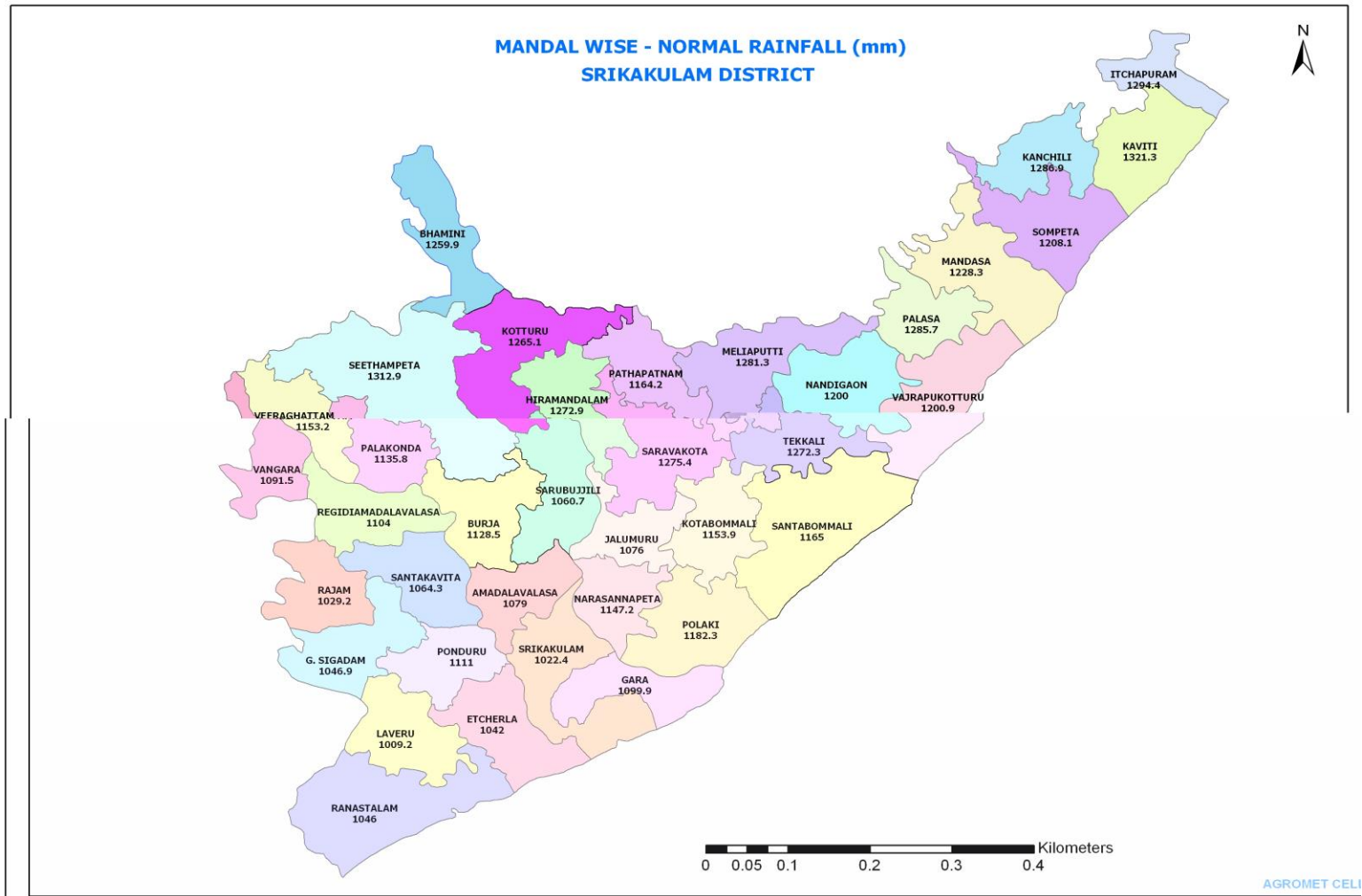


Fig: Mandal wise Rainfall distribution of Srikakulam District

Annexure - III

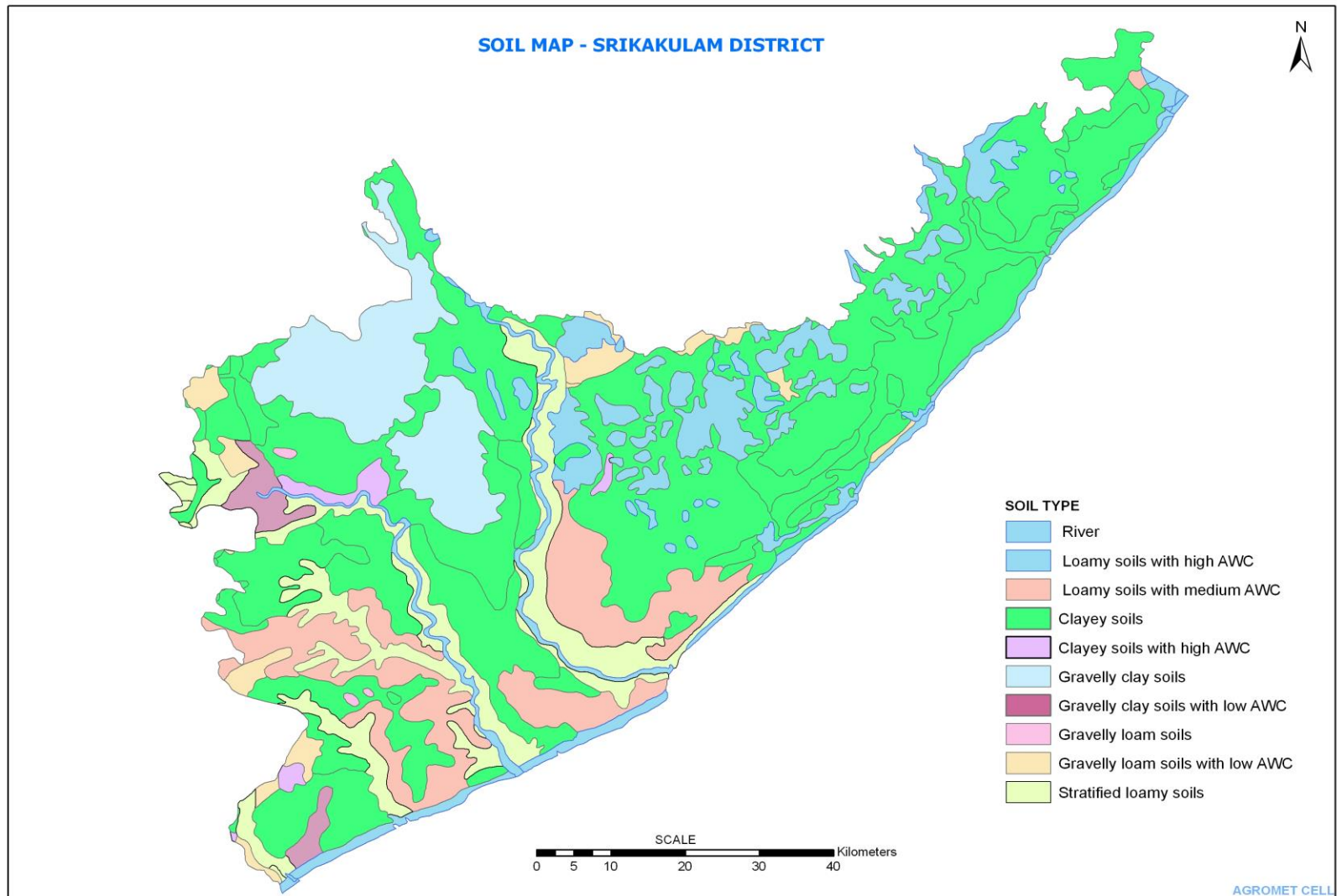


Fig: Soil map of the Srikakulam district

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	Normal Crop/ cropping system	Change in crop/ cropping system	Agronomic measures	Remarks on Implementation
Delay by 2 weeks (June 4 th Week)	Rain fed Red sandy loamy	Groundnut - Horsegram	No change	Same as normal crop	
		Mesta-Horsegram /Greengram			
		Maize - Greengram			
		Green gram			
	Rainfed Red clay Loams	Mesta-Horsegram Cotton-Fallow Maize - Greengram			

Condition			Suggested Contingency measures		
Early season drought (delayed onset)	Major Farming situation	Normal Crop/ cropping system	Change in crop/ Cropping system	Agronomic measures	Remarks on Implementation
Delay by 4 weeks (July 2 nd Week)	Rain fed Red sandy loamy	Groundnut-Horsegram	Maize/Ragi -Greengram	Direct sowing of Ragi Sowing of maize in ridge and furrow method	
		Mesta-Horsegram	Red gram /Redgram + Maize (1:2) /Greengram (1:3)		
		Maize - Greengram	No Change	-	
		Green gram	No change		
	Rainfed Red clay Loams Red loams Sandy soils	Groundnut-Horsegram	Ragi/Maize	-	
		Mesta-Horsegram	Redgram + Maize (1:2) /Greengram (1:3)	Sowing of maize in ridge and furrow method	
		Cotton	/Ragi Cotton		

Condition			Suggested Contingency measures		
Early season drought (delayed onset)	Major Farming situation	Normal Crop/ cropping system	Change in crop/ cropping system	Agronomic measures	Remarks on Implementation
Delay by 6 weeks (July 4 th Week)	Rain fed Red sandy loamy	Groundnut-Horse gram	Redgram Ragi-Greengram/Horsegram	Conservation furrow at every 3.5mtr.	Linkage with NFSM for seed of pulse crop
		Mesta-Horsegram	Ragi-Greengram/horsegram Redgram		Greengram /Redgram and Ragi seed arrangements can be done
		Maize	Redgram Ragi-Horsegram/greengram		
		Green gram	No change		
	Rainfed Red clay Loams	Groundnut-Horsegram	Maize (DHM117)/Ragi (VR-847)/ Redgram (LRG-52)		
		Mesta-Horsegram	Ragi-Horsegram/Blackgram		
		Cotton/Maize	No change		

Condition			Suggested Contingency measures		
Early season drought (delayed onset)	Major Farming situation	Normal Crop/ cropping system	Change in crop/ cropping system	Agronomic measures	Remarks on Implementation
Delay by 8 weeks (Specify month)* (August 2 nd week)	Rain fed Red sandy loamy	Groundnut-Horsegram	Ragi-Greengram Redgram with closer spacing Fodder sorghum/ vegetable cluster bean/cowpea		
		Mesta-Horsegram		Plan for early rabi Horsegram	
		Cotton			
	Rainfed Red sandy clay Loams	Groundnut-Horsegram			
		Mesta-Horsegram Cotton/Maize		Short duration Green varieties LGG-460,TM-96-2, IPM 2-14	

Condition			Suggested Contingency measures		
Early season drought (Normal onset)	Major Farming situation	Normal Crop/ cropping system	Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
Normal onset followed by 15-20	Rainfed Red sandy loamy	Groundnut-Horsegram	1. Re sowing in case of total crop failure	1. Making conservation furrows at every 3.5 m	Encourage digging of farm ponds

days dry spell after sowing leading to poor germination/crop stand etc.		Mesta-Horsegram	2.Foliar spray with 2% urea and 2% MOP or 1% KNO ₃ to protect the crop 3. Application of booster dose of urea after receipt of good rain.	distance	under NREGS
		Maize			
		Green gram			
	Rainfed Red clay Loams	Groundnut- Horse gram	1.Life saving irrigation 2. Foliar spray with 2 % urea and 2% MOP or KNO ₃ to protect the crop from moisture stress. 3.Re sowing in case of total crop failure 4. Application of booster dose of urea after receipt of good rain.	1. Making conservation furrows at 3.5 m 2. Maintain weed free condition	Encourage digging of farm ponds under MGNREGS
		Mesta-Horsegram	As above		
		Cotton	Gap filling in Cotton		

Condition			Suggested Contingency measures		
Mid season drought (long dry spell, consecutive 2 weeks and above)	Major Farming situation	Normal Crop/ cropping system	Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
At vegetative stage	Rain fed Red sandy loamy	Groundnut-Horsegram	1.Life saving irrigation if water available 2.Foliar spray with 2% urea and 1%MOP 3. Control sucking pest complex by spraying Dimethoate@2ml/lit Acephate @ 1.5 g per litre of water.	1. Making conservation furrows at 3.5 mt 2. Maintain weed free condition , 3. Frequent interculture to form dust mulch.	Encourage digging of farm ponds under NREGS
		Mesta-Horsegram			
		Maize			
		Green gram			
	Rainfed Red clay Loams	Groundnut-Horsegram	1.Life saving irrigation Foliar spray with 2% urea and 1% MOP		

		Mesta-Horsegram	As above and control of mealy bug with profinophos 2ml per litre		
		Cotton	1.Foliar spray with 2% urea and 1% MOP or% KNO ₃ 2.Sucking pest management with stem application, Monocrotophos (1:4)		

Condition			Suggested Contingency measures		
Mid season drought (long dry spell)	Major Farming situation	Normal Crop/ cropping system	Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
At reproductive stage	Rain fed Red sandy loamy	Groundnut-Horsegram	Life saving Irrigation if water available	1. Maintain weed free condition. 2. Inter cultivation to a shallow depth except for groundnut.	Digging of farm ponds under MGNREG
		Mesta-Horsegram			
		Maize	Protect against sucking pest complex by spraying Acephate@1gm/l		
		Green gram			
	Rainfed Red clay Loams	Groundnut-Horsegram	Life saving Irrigation if water available.	1. Digging form ponds 2. Making conservation furrows at 3.5 mt 3. Maintain weed free condition. 4 Inter cultivation to a shallow depth except for groundnut.	
		Mesta-Horsegram Cotton	Foliar spray with 2% urea and 1% MOP or KNO ₃		

Condition			Suggested Contingency measures		
Terminal drought	Major Farming situation	Normal Crop/ cropping system	Crop management	Rabi Crop planning	Remarks on Implementation
Terminal drought	Rain fed Red sandy loamy	Groundnut-Horsegram	Supplemental irrigation Prolonged dry spell may flare up incidence of jassids/thrips/flea beetles hence need based application of Acephate@1gm/l Foliar spray with 1% 19-19-19	Horsegram/Greengram	Linkage with NFSM for seed supply.
		Mesta-Horsegram			
		Maize			
		Green gram			
	Rainfed Red clay Loams	Maize-blackgram			
		Groundnut-Horsegram			
		Mesta-Horsegram			

		Cotton			
--	--	--------	--	--	--

2.1.2 Irrigated situation

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Delayed release of water in canals due to low rainfall	Tankfed sandy Clay loamy	Paddy- Pulse	No Change	1. Medium or Short duration varieties like , , , MTU 1121, MTU 1153, MTU 1156, NLR-3449 MTU-1010, , RGL 2538, JGL 1798. 2. Life saving irrigation to already sown nurseries. 3. Plating of aged seedlings with special management (Colse palnting 44 pl/sqmt 4-5 plants /hill, N in 2 splits instead of 3 splits 2/3 as basal) 4. Direct sowing of paddy with paddy drum seeder or broad casting of sprouted seed OR Direct sowing with ferti cum seed drill. 6. Adopt control measures for pest like gallmidge and leaf folder Maize sowing on Ridge and furrow method	
		Paddy-Groundnut/Sunflower	Paddy-Groundnut		
		Paddy-Maize	Paddy-Maize		
		Paddy- Sesame Maize – Maize Groundnut –Maize	No change		

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Delayed release of water in canals due to low rainfall	Canal fed Red sandy clay loamy	Paddy- Pulse	No Change	1. Direct seeding with Drum seeder with Medium or Short duration varieties like, NLR-34449, MTU-1010, MTU 1075, 2. Sowing of Greengram before paddy for green manure and also grain 3. Raising nurseries with short duration rice varieties like, JGL-1798, NLR-34449, MTU-1010 MTU 1156, MTU 1153, and MTU 1121 4. Plating of aged seedlings with special management (Colse palnting 44 pl/sqmt 4-5 plants /hill , N in 2 splits instead of 3 splits 2/3 as basal) 5. Adopt MSRI in Paddy 6. During Rabi season select greengram varieties like LGG 460, TM-96-2 , WGG 42 which are early maturing and suitable for delayed sowings.	Linkage with NFSM for seed supply and drum seeder.
		Paddy-Groundnut/Sunflower	No Change		
		Paddy-Maize	No Change		
		Paddy- Sesame			

		Paddy -Paddy	No change / Paddy-Groundnut	If paddy is grown during rabi adopt direct sowing with medium duration or short rice varieties like , JGL-1798, , NLR-34449 MTU-1010, MTU 1156, RGL 1880.	
--	--	--------------	-----------------------------	---	--

condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Limited release of water in canals due to low rainfall	Canal fed Red sandy loams (Head reach area)	Paddy- Pulse	No Change (Select short duration rice varieties)	Paddy: 1. Paddy in SRI method. 2. Direct seeding with Drum seeder with Medium or Short duration varieties like, MTU 1121, MTU 1153, MTU 1156 , NLR-3449 MTU-1010, RGL 2538, JGL 1798. 4. Raising nurseries with short duration rice varieties like , JGL-1798, , NLR-34449 MTU 1156, MTU 1153, and MTU-1010 5. Rotational irrigation should be followed	
		Paddy-Groundnut/Sunflower	Paddy-Groundnut		
		Paddy-Maize	Paddy-Maize		
		Paddy- Sesame	No change		
	Middle reach area	Paddy-Pulse	Maize/ Ragi –Pulses	Maize can be taken up in ridge and furrow method. Lifesaving Irrigation to Maize	

			Suggested Contingency measures		
condition	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
	Tail end area	Paddy-Pulse	Maize/ Ragi –Pulses	Maize can be takenup in ridge and furrow method. Lifesaving Irrigation to Maize	

Condition			Suggested Contingency measures		
	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Non release of water in canals under delayed onset of monsoon in catchment	Canalfed Red sandy clay loamy	Paddy- Pulse	Jowar/Ragi	Sowing of Greengram Lifesaving irrigation Foliar spray with 2% urea and 1% MOP	Supply greengram and fodder seed
		Paddy-Groundnut/Sunflower	Grow fodder crops for cattle : Pillipesara, Cowpea, Fodder Maize, Jowar and <i>Stylosanthes hemata</i> for Sheep		
		Paddy-Maize			
		Paddy- Sesame			
		Pulses-Paddy-Groundnut			

Condition			Suggested Contingency measures		
	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Lack of inflows into tanks due to insufficient /delayed onset of monsoon	Tankfed Sandy clay loamy	Paddy- Pulse	Jowar/Ragi	Lifesaving irrigation Foliar spray with 2% urea and 1% MOP	-
		Paddy-Groundnut/Sunflower	Grow fodder crops for cattle : Pillipesara, Cowpea, Fodder Maize, Jowar and Stylo hemata for Sheep		
		Paddy-Maize			
		Paddy- Sesame			
		Pulses-Paddy-Groundnut			

Condition			Suggested Contingency measures		
	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Insufficient groundwater recharge due to low rainfall	Irrigated Red clay and Alluvial clay	Paddy- Pulse	No change (or) Grow irrigated dry crops like maize/ Jowar/Ragi, green gram in place of paddy Grow fodder crops for cattle. Cotton can be takenup in well drained soils	If paddy : . 1. Adopt alternate wetting and drying upto primordial initiation stage to save water. 2. Irrigate upto a depth	

Condition			Suggested Contingency measures		
	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
				of 3 – 5 cm from Primordial Initiation to maturity 3. Take up effective weed control measures either mechanically or through herbicides 4.Maize in ridges and furrow method so as to save water 5.Plan for early rabi with green gram short duration varieties like LGG-460 or TM-96-2 and IPM 2-14 or blackgram (PU-31)	
		Paddy-Maize	No change	As above	
		Paddy- Sesame		Adopt alternate or skip furrow irrigation. If possible provide drip irrigation system	
		Sugarcane			
	Irrigated Red sandy loams	Ground nut – Groundnut / Maize	No change (or) Maize	Maize in ridges and furrow method so as to save water Irrigate the maize crop alternate row In case of groundnut strip irrigation or sprinkler irrigation.	
		Groundnut/Sunflower	No change		

Condition			Suggested Contingency measures		
	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Any other condition (specify)	Insufficient flows from Hill Streams	Paddy-Pulses	No change	Direct sowing of paddy with medium and Short duration paddy varieties (JGL-1798, , NLR-34449 MTU 1156,MTU 1153, and MTU-1010)	
		Paddy-Groundnut			
		Paddy-Maize			
		Paddy-Vegetables			

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
Paddy	- Drain out excess water - In case of loss of plant population Survived hills are to be split into individual tillers and use for gap filling. - Apply a booster dose of 20-25kg of urea and 15kg of MOP per acre hasten the establishment and promote more tillering - Pests like Leaf folder and swarming caterpillar may emerge so monitor the pest and control measures like spraying of chloripyriphos 2.5 ml/l or cartap hydrochloride 2gm/l may be taken up.	- Drain out excess water, Apply a booster dose of 20-25kg of urea and 15kg of MOP per acre - Monitor incidence of BPH and initiate Control measures for BPH - Bufrofinzin 1.6ml/lit or Acephate 1.5 gm/lit - Spraying should be done in evening times only.	- Drain out excess water. - Control measures for BPH - Spraying of Bufrofinzin 1.6ml/lit or Acephate 1.5 gm/lit - In case of lodging staking of paddy hills (3-4hills) may be done.	- Spraying of 5% salt solution to prevent germination and discolouration of grain. - Shifting of harvested sheaves to the field bunds or elevated places.
Groundnut	- Drain out the water as early as possible - Inter cultivation as soon as possible for quick evaporation of excess moisture. - Spraying with 1% Multi K or 19:19:19 to correct nutrient deficiencies and enhance growth	- Drain out the water as early as possible - Pests like Spodoptera may attack the crop. control measures like Thiodicarb 1gm/l may be sprayed	- Drain out the water as early as possible. - Spraying with carbendiazm 1gm /+ Mancozeb 3gm/l as prophylactic measure against fungal diseases. - Harvesting may be	- Drain out the water as early as possible. - Pluck the pods from plants and dry - Harvested crop may kept in heaps upside down to facilitate the pods to dry early.

	Spraying with carbendiazm 1gm /+ Mancozeb 3gm/l as prophylactic measure against fungal diseases	Spraying with carbendiazm 1gm /+ Mancozeb 3gm/l as prophylactic measure against fungal diseases	planned in case of advanced maturity stage.	
Mesta	Drain out water Spray 2% urea +1% Potash In case of foot and stem rot occurrence Drench and spray the crop with COC 3gm/l	Drain out the water as early as possible.	Drain out the water Harvesting may be planned in case of advanced maturity stage.	Use the excess water for retting process. Stack the sticks vertically To enhance retting of basal portion.
Cotton	Drain out water. Intercultivation for improving aeration. Spraying of 2% Urea + 1% MOP In case of wilt, root rot / Blackgram disease Drench/spray the crop with COC 3gm/l + Streptocyclin @ 0.1g/l	Drain out water. Intercultivation for improving aeration. Spraying of 2% Urea + 1% MOP Booster dose of 20-25kg Urea + 10kg MOP can be done	Drain out water Spraying of 2% Urea + 1% MOP Booster dose of 20-25kg Urea + 10kg MOP can be done Drench/spray the crop with COC 3gm/l + Streptocyclin @ 0.1g/l to control the Bollrot	Dry the harvested cotton
Maize	- Drain out the water as early as possible - Inter cultivation as soon as possible for quick evaporation of excess moisture. - Apply a booster dose of 20-25kg of urea and 15kg of MOP per acre - Spraying with 1% Multi K or 19:19:19 to correct nutrient deficiencies and enhance growth	- Drain out the water as early as possible - Inter cultivation as soon as possible for quick evaporation of excess moisture. - Apply a booster dose of 20-25kg of urea and 15kg of MOP per acre - Spraying with 1% Multi K or 19:19:19 to correct nutrient deficiencies and enhance growth	- Drain out the water as early as possible. - Harvesting may be planned in case of advanced maturity stage for greencob purpose	- Drain out the water as early as possible. - Harvested cobs may be dried
Sugarcane	- Drain out the water as early as possible - Inter cultivation as soon as possible for quick evaporation of excess moisture. - Apply a booster dose of 50 kg of	- Drain out the water as early as possible - Apply a booster dose of 50 kg of urea and 50 kg of MOP per acre	- Drain out the water as early as possible - Propping may be done to the lodged canes - Plan for early harvesting and send to the factory	- Drain out the water as early as possible - Plan for send to the factory at the earliest or for jaggery making

	urea and 50 kg of MOP per acre	- If soil application is not possible go for spraying with 2.5% urea+2.5 % MOP - Propping may be done to the lodged canes	or for jaggery making	
Horticulture crops – Fruits				
Mango	- Drain the excess water as soon as possible - Spray 1% KNO₃ or Urea 2% solution 2-3 times. - Wind damaged branches should be pruned using disinfected secateurs and cut ends must be smeared with Bordeaux paste or 3g COC/lit solution. - Drench/spray the plants with COC 3gm/l to control the root rot. - In young orchards plants can be supported with bamboo sticks.	- Drain the excess water as soon as possible - Spray 1% KNO₃ or Urea 2% solution 2-3 times. - Wind damaged branches should be pruned using disinfected secateurs and cut ends must be smeared with Bordeaux paste. Spray Imidacloprid @ 0.3ml/l of water against sucking pests. - Apply booster dose of fertilizers 550g urea, 1.5kg SSP, 400g MOP/ Plant	- Drain the excess water as soon as possible - Harvest the mature produce in a clear sunny day - Wind damaged branches should be pruned using disinfected secateurs and cut ends must be smeared with Bordeaux paste	- Store the fruits in well ventilated place temporarily before it can be marketed. - Market the fruits as soon as possible. - Grade the damaged or infected fruits. - Store the graded fruits in well ventilated place temporarily before it can be marketed.
Horticulture crops vegetables				
Chillies	- Drain the excess water as soon as possible - Spray Urea 2% solution 2-3 times. - Topdressing of booster dose of 15 kg MOP + 30 kg Urea per acre as soon as possible. - Gap filling may be taken up if the plants are two weeks old and sowing window is still available for the crop. - In case of severe damage (considered as complete economical loss), and the contingency period is between June to August, sowing of best alternative crop must be taken	- Drain the excess water as soon as possible - Spray Urea 2% solution 2-3 times. - Topdressing of booster dose of 15 kg MOP + 30 kg Urea per acre as soon as possible. - Spraying of COC @ 30g + Streptocyclin @ 1g per 10liters of water to control the leaf spot and Choenophora blight.	- Drain the excess water as soon as possible - Harvest the matured fruits in a clear sunny day.	- Dry the pods on concrete floor immediately after the appearance of sunlight (or). - Use poly house solar driers for quick drying - Grade the pods and market as soon as possible. - Do not store such produce for long periods.

	up. • Drenching of COC @3g/l to avoid the root rot and wilt.			
Spices and Plantation crops				
Oil palm and Coconut	• Remove the damaged and hanging leaves. • Planting should be done on mounts or bunds • Drainage system, suited to local conditions may be provided to remove surplus water from root zone • Relief drains [shallow] channels are opened at places where water accumulates and connected with main drain to remove water from the surface • Pour 200-250 ml of COC 3g/l solution in crown region against budrot disease.	• Drain the excess water as soon as possible • Apply booster dose of NPK fertilizers • Apply booster dose of fertilizers 500g urea, 1.0 kg SSP, 1kg MOP/ Plant	• Drain the excess water as soon as possible • Apply booster dose of NPK fertilizers • Harvest the mature nuts as soon as possible.	• Store the produce in well ventilated place temporarily before it can be market • Market the nuts as soon as possible.

Cashew	• Drain the excess water as soon as possible • Spray 1% KNO₃ or Urea 2% solution 2-3 times. • Apply booster dose of fertilizers 250g Urea, 200g SSP, 70g MOP. • Spraying of Imidacloprid @ 0.3ml/l of water against sucking pests	• Drain the excess water as soon as possible • Spray 1% KNO₃ or Urea 2% solution 2-3 times. • Apply booster dose of fertilizers 250g Urea, 200g SSP, 70g MOP. • Spraying of Imidacloprid @ 0.3ml/l of water against sucking pests	• Drain the excess water as soon as possible • Spray 1% KNO₃ or Urea 2% solution 2-3 times. • Harvest the mature fruits as soon as possible	• Separate seed from the fruits and dry the seeds separately. • Store the fruits in well ventilated place temporarily before it can be marketed. • Market the fruits as soon as possible or use for the preparation of processed products.
Heavy rainfall with high speed winds in a short span²				
Paddy	• Drain out excess water	• Drain out excess	• Drain out excess water.	• Spraying of 5% salt

	- Incase of loss of plant population Survived hills are to be split into individual tillers and use for gap filling. - Apply a booster dose of 20-25kg of urea and 15kg of MOP per acre hasten the establishment and promote more tillering - Pests like Leaf folder and swarming caterpillar may emerge so monitor the pest and control measures like spraying of chloripyriphos 2.5 ml/l or cartap hydrochloride 2gm/l may be taken up.	water, Apply a booster dose of 20-25kg of urea and 15kg of MOP per acre - Monitor incidence of BLB and sheath blight and initiate Control measures for BLB - Spraying should be done in evening times only.	- Control measures for BPH - Spraying of Bufrofin 1.6ml/l or Acephate 1.5 gm/l - In case of lodging at milky stage staking of paddy hills (3-4hills) may be done.	solution to prevent germination and discolouration of grain. Shifting of harvested sheaves to the field bunds or elevated places.
Groundnut	Drain out the water as early as possible Inter cultivation as soon as possible for quick evaporation of excess moisture. Spraying with 1% 19:19:19 or 13-0-45 to correct nutrient deficiencies and enhance growth Spraying with carbendiazm 1gm /+ Mancozeb 3gm/l as prophylactic measure against fungal diseases.	Drain out the water as early as possible Spraying with carbendiazm 1gm /+ Mancozeb 3gm/l as prophylactic measure against fungal diseases.	Drain out the water as early as possible . Harvesting may be planned in case of advanced maturity stage.	Drain out the water as early as possible. Pluck the pods from plants and dry. Harvested crop may kept in heaps upside down to facilitate the pods to dry early
Mesta	Drain out water Spray 2% urea +1% Potash In case of foot and stem rot occurrence Drench the crop with COC 3gm/l	Drain out the water as early as possible. In case of lodging lift the crop and stake the crop.	Drain out the water Harvesting may be planned in case of advanced maturity stage.	Use the excess water for retting process. Stack the sticks vertically To enhance retting of basal portion.
Cotton	Drain out water Booster dose of 20-25kg Urea + 10kg MOP can be done Spraying of 2% Urea + 1% MOP In case of wilt, root rot / Blackarm disease Drench the crop with COC 3gm/l + Streptocyclin @ 0.1g/l	Drain out water Spraying of 2% Urea + 1% MOP Booster dose of 20-25kg Urea + 10kg MOP can be done	Drain out water Spraying of 2% Urea + 1% MOP Drench/spray the crop with COC 3gm/l + Streptocyclin @ 0.1g/l to control the Bollrot	Dry the harvested cotton
Maize	Drain out the water as early as possible	Drain out the water as early as	Drain out the water as early as possible.	Drain out the water as early as possible.

	• Inter cultivation as soon as possible for quick evaporation of excess moisture. • Apply a booster dose of 20-25kg of urea and 15kg of MOP per acre • Spraying with 1% Multi K or 19:19:19 to correct nutrient deficiencies and enhance growth	• possible • Inter cultivation as soon as possible for quick evaporation of excess moisture. • Apply a booster dose of 20-25kg of urea and 15kg of MOP per acre • Spraying with 1% Multi K or 19:19:19 to correct nutrient deficiencies and enhance growth	Harvesting may be planned in case of advanced maturity stage for greencob purpose	• Harvested cobs may be dried .
Sugarcane	• Drain out the water as early as possible • Inter cultivation as soon as possible for quick evaporation of excess moisture. • Apply a booster dose of 50 kg of urea and 50 kg of MOP per acre	• Drain out the water as early as possible • Apply a booster dose of 50 kg of urea and 50 kg of MOP per acre • Propping may be done to the lodged canes	• Drain out the water as early as possible • Propping may be done to the lodged canes • Plan for early harvesting and send to the factory or for jaggery making	• Drain out the water as early as possible • Plan for send to the factory at the earliest or for jaggery making
Horticulture crops – Fruits				
Mango	• Drain the excess water as soon as possible • Spray 1% KNO₃ or Urea 2% solution 2-3 times. • Wind damaged branches should be pruned using disinfected secateurs and cut ends must be smeared with Bordeaux paste • Drench/spray the plants with COC 3gm/l to control the root rot.	• Drain the excess water as soon as possible • Spray 1% KNO₃ or Urea 2% solution 2-3 times. • Wind damaged branches should be pruned using disinfected secateurs	• Drain the excess water as soon as possible • Harvest the mature produce in a clear sunny day' • Wind damaged branches should be pruned using disinfected secateurs and cut ends must be smeared with Bordeaux paste	• Store the fruits in well ventilated place temporarily before it can be marketed. • Market the fruits as soon as possible. • Grade the damaged or infected fruits. • Store the graded fruits in well ventilated place temporarily before it can be marketed.

	In young orchards plants can be supported with bamboo sticks.	and cut ends must be smeared with Bordeaux paste 		
Horticulture crops vegetables				
Chillies	- Drain the excess water as soon as possible - Spray Urea 2% solution 2-3 times. - Topdressing of booster dose of 15 kg MOP + 30 kg Urea per acre as soon as possible. - Gap filling may be taken up if the plants are two weeks old and sowing window is still available for the crop. In case of severe damage (considered as complete economical loss), and the contingency period is between June to August, sowing of best alternative crop must be taken up. - Drenching of COC @3g/l to avoid the root rot and wilt	- Drain the excess water as soon as possible - Spray Urea 2% solution 2-3 times. - Topdressing of booster dose of 15 kg MOP + 30 kg Urea per acre as soon as possible. - Spraying of COC @ 30g + Streptocyclin @ 1g per 10liters of water to control the leaf spot and Choenophora blight.	- Drain the excess water as soon as possible - Harvest the matured fruits in a clear sunny day.	- Dry the pods on concrete floor immediately after the appearance of sunlight (or). - Use poly house solar driers for quick drying - Grade the pods and market as soon as possible. - Do not store such produce for long periods.
Spices and Plantation crops				
Oil palm and Coconut	- Planting should be done on mounts or bunds - Drainage system, suited to local conditions may be provided to remove surplus water from root zone - Relief drains [shallow] channels are opened at places where water accumulates and connected with main drain to remove water from the surface	- Drain the excess water as soon as possible - Apply booster dose of NPK fertilizers - Apply booster dose of fertilizers 500g urea, 1.0 kg SSP, 1kg MOP/ Plant	- Drain the excess water as soon as possible - Apply booster dose of NPK fertilizers Harvest the mature nuts as soon as possible.	- Store the produce in well ventilated place temporarily before it can be market - Market the nuts as soon as possible.
Cashew	- Drain the excess water as soon as possible - Spray 1% KNO3 or Urea 2% solution 2-3 times.	- Drain the excess water as soon as possible - Spray 1% KNO3 or	- Drain the excess water as soon as possible - Spray 1% KNO3 or Urea 2% solution 2-3 times.	- Separate seed from the fruits and dry the seeds separately. - Store the fruits in well ventilated place temporarily

		Urea 2% solution 2-3 times.	Harvest the mature fruits as soon as possible	before it can be marketed. Market the fruits as soon as possible or use for the preparation of processed products.
Outbreak of pests and diseases due to unseasonal rains				
Paddy	Pests like Leaf folder and swarming caterpillar may emerge so monitor the pest and control measures like spraying of chloripyriphos 2.5 ml/l or cartap hydrochloride 2gm/l may be taken up Initiate Prophylactic sprays against blast and sheath blight Sparying of tricyclozole @0.6 g/l for blast and propiconazole @ 1 ml/l or hexaconazole @ 2 ml/l for sheath blight.	Monitor incidence of BPH and initiate Control measures for BPH Bufrofin 1.6ml/l or Acephate 1.5 gm/l Spraying should be done in evening times only. Initiate Prophylactic sprays against blast and sheath rot Sparying of tricyclozole @0.6 g/l for blast and propiconazole @ 1 ml/l or hexaconazole @ 2 ml/l for sheath rot.	Climbing cut worm incidence should be monitored and spray with Chloropyriphos 2.5ml+Dichlorovas1ml/l	Dry the seed properly (at 13-14% moisture level) and store in a dry place
Groundnut	Spraying with carbendiazim 1gm /+ Mancozeb 3gm/l as prophylactic measure against fungal diseases	Pests like Spodoptera may attack the crop. control measures like Thiodicarb 1gm/l may be sprayed Spraying with carbendiazim 1gm /+ Mancozeb 3gm/l as prophylactic measure against fungal diseases	Spraying with carbendiazim 1gm /+ Mancozeb 3gm/l as prophylactic measure against fungal diseases. Harvesting may be planned in case of advanced maturity stage	Pluck the pods from plants and dry
Mesta	Incase of foot and stem rot occurrence Drench and spray the crop with COC 3gm/l	Incase of foot and stem rot occurrence Drench and spray the crop with COC 3gm/l		

Maize	IPM practices against fall army worm may be adopted from the early vegetative stage	IPM practices against fall army worm may be adopted from the early vegetative stage	- IPM practices against fall army worm may be adopted from the early vegetative stage	
Sugarcane	Initiate Prophylactic measures against whip smut Spraying with Propiconazole @ 1 ml/l			

2.3 Floods

Condition	Suggested contingency measure ⁰			
	Seedling / nursery stage	Vegetative stage	Reproductive stage	At harvest
Transient water logging/ partial inundation ¹				

Paddy	Drain out excess water and Apply a booster dose of 2-2.5kg of urea and 1.5kg of MOP per 10 cents nursery hasten the growth of nursery Apply a booster dose of 20-25kg of urea and 15kg of MOP per acre hasten the establishment and promote more tillering in direct sown paddy Incase of loss of plant population Survived hills are to be split into individual tillers and use for gap filling. Pests like Leaf folder and swarming caterpillar may emerge so monitor the pest and control measures like spraying of chloripyriphos 2.5 ml/l or cartap hydrochloride 2gm/l may be taken up.	Drain out excess water and Apply a booster dose of 20-25kg of urea and 15kg of MOP per acre hasten the establishment and promote more tillering Gap filing can be takenup with established tillers. Pests like Leaf folder and swarming caterpillar may emerge so monitor the pest and control measures like spraying of chloripyriphos 2.5 ml/l or car tap hydrochloride 2gm/l may be taken up. Resowing of Paddy, direct seeding with Drum seeder or broadcasting of sprouted seed Initiate Prophylactic sprays against blast and sheath rot Sparying of tricyclozole @0.6 g/l for blast and propiconazole @ 1 ml/l or hexaconazole @ 2 for sheath blight	Drain out excess water Foliar spraying with 1% 13-0-45 during evening period. Monitor incidence of BPH and initiate Control measures for BPH Bufrofin 1.6ml/l or Acephate 1.5 gm/l Spraying should be done in evening times only Initiate Prophylactic sprays against blast and sheath rot Sparying of tricyclozole @0.6 g/l for blast and propiconazole @ 1 ml/l or hexaconazole @ 2 for sheath rot	Drain out excess water Spray 5% salt solution on paddy sheaves If the paddy crop lost, fodder shortage would be severe, so fodder crops like pillipesara, cowpea, etc may be grown Plan for rabi crops like oilseed and pulses
-------	--	---	--	--

Groundnut	Drain out the water as early as possible. In case of loss of crop resowing with short duration greengram/ragi may be taken up Sparry with 1% urea. Zinc sulphate sparyaing 2gm /lt Spraying with carbendiazm 1gm /+ Mancozeb 3gm/lt as prophylactic measure against fungal diseases	Drain out the water as early as possible. Sparry with 1% urea. Zinc sulphate sparyaing 2gm /lt Spraying with carbendiazm 1gm /+ Mancozeb 3gm/lt as prophylactic measure against fungal diseases Booster dose of fertilizer 10-15kg urea + 10kg MOP Can be applied or Foliar spraying with 1% 19-19-19 during evening period.	Drain out the water as early as possible Spraying with carbendiazm 1gm /+ Mancozeb 3gm/lt as prophylactic measure against fungal diseases. Harvesting may be planned in case of advanced maturity stage	Drain out the water as early as possible. Pluck the pods from plants and dry Harvested crop may kept in heaps upside down to facilitate the pods to dry early.
Mesta	Drain out excess water Resowing may be done in case of loss of crop Spray 2% urea +1% Potash Incase of foot and stem rot occurrence Drench and spray the crop with COC 3gm/lt	Drain out excess water Apply a booster dose of 20-25kg of urea and 15kg of MOP per acre or Spray 2% urea +1% Potash Incase of foot and stem rot occurrence Drench and spray the crop with COC 3gm/lt	Drain out the water as early as possible. Harvesting may be planned in case of advanced maturity stage	Use the excess water for retting process. Stack the sticks vertically To enhance retting of basal portion.
Cotton	Drain out water Spraying of 2% Urea + 1% MOP Incase of wilt, root rot / Blackarm disease Drench/spray the crop with COC 3gm/l + Streptocyclin @ 0.1g/l	Drain out water Spraying of 2% Urea + 1% MOP Booster dose of 20-25kg Urea + 10kg MOP can be done	Drain out water Spraying of 2% Urea + 1% MOP Booster dose of 20-25kg Urea + 10kg MOP can be done Drench/spray the crop with COC 3gm/l + Streptocyclin @ 0.1g/l to control the Bollrot	Dry the harvested cotton

Maize	• Drain out the water as early as possible • In case of loss of plant population gap filling may be done for green cob purpose • Spraying with 1% Multi K or 19:19:19 to correct nutrient deficiencies and enhance growth	• Drain out the water as early as possible • Inter cultivation as soon as possible for quick evaporation of excess moisture. • Apply a booster dose of 20-25kg of urea and 15kg of MOP per acre • Spraying with 1% Multi K or 19:19:19 to correct nutrient deficiencies and enhance growth	• Drain out the water as early as possible • Apply a booster dose of 20-25kg of urea and 15kg of MOP per acre • Spraying with 1% Multi K or 19:19:19 to correct nutrient deficiencies and enhance growth	• Drain out the water as early as possible. Harvesting may be planned in case of advanced maturity stage for green cob purpose
Sugarcane	• Drain out the water as early as possible • In case of loss of plant population Gap filling may be done to maintain optimum population	• Drain out the water as early as possible • Inter cultivation as soon as possible for quick evaporation of excess moisture. • Apply a booster dose of 20-25kg of urea and 15kg of MOP per acre	• Drain out the water as early as possible • Apply a booster dose of 20-25kg of urea and 15kg of MOP per acre • Propping may be done to the lodged canes	• Drain out the water as early as possible • Propping may be done to the lodged canes • Plan for early harvesting and send to the factory or for jaggery making •
Horticulture crops – Fruits				
Mango	• Drain the excess water as soon as possible • Spray 1% KNO₃ or Urea 2% solution 2-3 times. • Wind damaged branches should be pruned using disinfected secateurs and cut ends must be smeared with Bordeaux paste	• Drain the excess water as soon as possible • Spray 1% KNO₃ or Urea 2% solution 2-3 times. • Wind damaged branches should be pruned using disinfected secateurs and cut ends must be smeared with Bordeaux paste •	• Drain the excess water as soon as possible • Harvest the mature produce in a clear sunny day' • Wind damaged branches should be pruned using disinfected secateurs and cut ends must be smeared with Bordeaux paste	• Store the fruits in well ventilated place temporarily before it can be marketed. • Market the fruits as soon as possible. • Grade the damaged or infected fruits. • Store the graded fruits in well ventilated place temporarily before it can be marketed.

Horticulture crops vegetables				
Chillies	• Drain the excess water as soon as possible • Spray Urea 2% solution 2-3 times. • Topdressing of booster dose of 15 kg MOP + 30 kg Urea per acre as soon as possible. • Gap filling may be taken up if the plants are two weeks old and sowing window is still available for the crop. • In case of severe damage (considered as complete economical loss), and the contingency period is between June to August, sowing of best alternative crop must be taken up.	• Drain the excess water as soon as possible • Spray Urea 2% solution 2-3 times. • Topdressing of booster dose of 15 kg MOP + 30 kg Urea per acre as soon as possible.	• Drain the excess water as soon as possible • Harvest the matured fruits in a clear sunny day.	• Dry the pods on concrete floor immediately after the appearance of sunlight (or). • Use poly house solar driers for quick drying • Grade the pods and market as soon as possible. • Do not store such produce for long periods.
Spices and Plantation crops				
Oil palm and Coconut	• Planting should be done on mounts or bunds • Drainage system, suited to local conditions may be provided to remove surplus water from root zone • Relief drains [shallow] channels are opened at places where water accumulates and connected with main drain to remove water from the surface	• Drain the excess water as soon as possible • Apply booster dose of NPK fertilizers	• Drain the excess water as soon as possible • .Apply booster dose of NPK fertilizers • Harvest the mature nuts as soon as possible.	• Store the produce in well ventilated place temporarily before it can be market • Market the nuts as soon as possible.

Cashew	• Drain the excess water as soon as possible • Spray 1% KNO₃ or Urea 2% solution 2-3 times.	• Drain the excess water as soon as possible • Spray 1% KNO₃ or Urea 2% solution 2-3 times.	• Drain the excess water as soon as possible • Spray 1% KNO₃ or Urea 2% solution 2-3 times. • Harvest the mature fruits as soon as possible	• Separate seed from the fruits and dry the seeds separately. • Store the fruits in well ventilated place temporarily before it can be marketed. • Market the fruits as soon as possible or use for the preparation of processed products.
Continuous submergence for more than 2 days²				
Paddy	Drain out excess water and Apply a booster dose of 2-2.5kg of urea and 1.5kg of MOP per 10 cents nursery hasten the growth of nursery Re sowing of nurseries with medium to short duration Varieties. Areas prone to water logging MTU 1075, MTU 1061, MTU 1064 may grown ,as these varieties withstand submergence for about one week	Drain out excess water Apply a booster dose of 20-25kg of urea and 15kg of MOP per acre hasten the establishment Survived hills are to be split into individual tillers and used for gap filling. Pests like Leaf folder and swarming caterpillar may emerge so monitor the pest and control measures like spraying of chloripyriphos 2.5 ml/lit or cartap hydrochloride 2gm/lit may be taken up. Initiate Prophylactic sprays against blast and sheath rot Spraying of tricyclozole @0.6 g/l for blast and propiconazole @ 1 ml/l or hexaconazole @ 2 for sheath blight	Drain out excess water and apply booster dose of Nitrogen to recoup the growth Spraying should be done in evening times only Initiate Prophylactic sprays against blast and sheath rot Spraying of tricyclozole @0.6 g/l for blast and propiconazole @ 1 ml/l or hexaconazole @ 2 for sheath blight	Drain out excess water Spray 5% salt solution on paddy sheaves Shifting of harvested sheaves to the field bunds or elevated places. If the paddy crop lost, fodder shortage would be severe, so fodder crops like pillipesara, cowpea, sunnhemp etc may be grown

Groundnut	Drain out the water as early as possible. Spraying with carbendazim 1gm /lt as prophylactic measure against fungal diseases	Drain out the water as early as possible. Spary with 1% urea. Zinc sulphate sparyaing 2gm /lt Spraying with carbendazim 1gm /lt as prophylactic measure against fungal diseases	Drain out the water as early as possible Spraying with carbendazim 1gm /lt as prophylactic measure against fungal diseases	Drain out the water as early as possible. Pluck the pods from plants and dry Harvested crop may kept in heaps upside down to facilitate the pods to dry early.
Mesta	Drain out excess water Resowing may be done in case of loss of crop Spray 2% urea +1% Potash Incase of foot and stem rot occurrence Drench and spray the crop with COC 3gm/lt	Drain out excess water Apply a booster dose of 20-25kg of urea and 15kg of MOP per acre or Spray 2% urea +1% Potash Incase of foot and stem rot occurrence Drench and spray the crop with COC 3gm/lt	Drain out the water as early as possible. Harvesting may be planned in case of advanced maturity stage	Use the excess water for retting process. Stack the sticks vertically To enhance retting of basal portion.
Cotton	Drain out water Spraying of 2% Urea + 1% MOP Incase of wilt, root rot / Blackarm disease Drench/spray the crop with COC 3gm/l + Streptocyclin @ 0.1g/l	Drain out water Spraying of 2% Urea + 1% MOP Booster dose of 20-25kg Urea + 10kg MOP can be done	Drain out water Spraying of 2% Urea + 1% MOP Booster dose of 20-25kg Urea + 10kg MOP can be done Drench/spray the crop with COC 3gm/l + Streptocyclin @ 0.1g/l to control the Bollrot	Dry the harvested cotton

Maize	• Drain out the water as early as possible • In case of loss of plant population gap filling may be done for green cob purpose • Spraying with 1% Multi K or 19:19:19 to correct nutrient deficiencies and enhance growth	• Drain out the water as early as possible • Inter cultivation as soon as possible for quick evaporation of excess moisture. • Apply a booster dose of 20-25kg of urea and 15kg of MOP per acre • Spraying with 1% Multi K or 19:19:19 to correct nutrient deficiencies and enhance growth	• Drain out the water as early as possible • Apply a booster dose of 20-25kg of urea and 15kg of MOP per acre • Spraying with 1% Multi K or 19:19:19 to correct nutrient deficiencies and enhance growth	• Drain out the water as early as possible. Harvesting may be planned in case of advanced maturity stage for green cob purpose
Sugarcane	• Drain out the water as early as possible • In case of loss of plant population Gap filling may be done to maintain optimum population	• Drain out the water as early as possible • Inter cultivation as soon as possible for quick evaporation of excess moisture. • Apply a booster dose of 20-25kg of urea and 15kg of MOP per acre	• Drain out the water as early as possible • Apply a booster dose of 20-25kg of urea and 15kg of MOP per acre • Propping may be done to the lodged canes	• Drain out the water as early as possible • Propping may be done to the lodged canes • Plan for early harvesting and send to the factory or for jaggery making
Horticulture crops – Fruits				
Mango	• Drain the excess water as soon as possible • Spray 1% KNO₃ or Urea 2% solution 2-3 times. • Wind damaged branches should be pruned using disinfected secateurs and cut ends must be smeared with Bordeaux paste	• Drain the excess water as soon as possible • Spray 1% KNO₃ or Urea 2% solution 2-3 times. • Wind damaged branches should be pruned using disinfected secateurs and cut ends must be smeared with Bordeaux paste	• Drain the excess water as soon as possible • Harvest the mature produce in a clear sunny day' • Wind damaged branches should be pruned using disinfected secateurs and cut ends must be smeared with Bordeaux paste	• Store the fruits in well ventilated place temporarily before it can be marketed. • Market the fruits as soon as possible. • Grade the damaged or infected fruits. • Store the graded fruits in well ventilated place temporarily before it can be marketed.
Horticulture crops vegetables				

Chillies	• Drain the excess water as soon as possible • Spray Urea 2% solution 2-3 times. • Topdressing of booster dose of 15 kg MOP + 30 kg Urea per acre as soon as possible. • Gap filling may be taken up if the plants are two weeks old and sowing window is still available for the crop. • In case of severe damage (considered as complete economical loss), and the contingency period is between June to August, sowing of best alternative crop must be taken up.	• Drain the excess water as soon as possible • Spray Urea 2% solution 2-3 times. • Topdressing of booster dose of 15 kg MOP + 30 kg Urea per acre as soon as possible.	• Drain the excess water as soon as possible • Harvest the matured fruits in a clear sunny day.	• Dry the pods on concrete floor immediately after the appearance of sunlight (or). • Use poly house solar driers for quick drying • Grade the pods and market as soon as possible. • Do not store such produce for long periods.
Spices and Plantation crops				
Oil palm, Coconut	• Planting should be done on mounts or bunds • Drainage system, suited to local conditions, may be provided to remove surplus water from root zone • Relief drains [shallow] channels are opened at places where water accumulates and connected with main drain to remove water from the surface	• Drain the excess water as soon as possible • Apply booster dose of NPK fertilizers	• Drain the excess water as soon as possible • Apply booster dose of NPK fertilizers	• Harvest the mature nuts as soon as possible. • Market the produce as soon as possible.

Cashew	• Drain the excess water as soon as possible • Spray 1% KNO₃ or Urea 2% solution 2-3 times.	• Drain the excess water as soon as possible • Spray 1% KNO₃ or Urea 2% solution 2-3 times.	• Drain the excess water as soon as possible • Spray 1% KNO₃ or Urea 2% solution 2-3 times.	• Drain the excess water as soon as possible. • Harvest the mature produce as soon as possible. • Store the produce in well-ventilated place temporarily before it can be marketed. • Market the produce as soon as possible.
Sea water intrusion³				
Paddy	Drain out excess water and irrigate the field with fresh water and again drainout the field. Apply a booster dose of 2-2.5kg of urea and 1.5kg of MOP per 10 cents nursery hasten the growth of nursery Re sowing of nurseries with salt tolerant medium to short duration Varieties (Deepti, Panduranga Somasila or Swarnamukhi).	Drain out excess water and irrigate the field with fresh water and again drainout the field. Apply a booster dose of 20-25kg of urea and 15kg of MOP and Gypsum 200kg per acre hasten the establishment and promote more tillering Survived hills are to be split into individual tillers and used for gap filling. Pests like Leaf folder and swarming caterpillar may emerge so monitor the pest and control measures like spraying of chloripyriphos 2.5 ml/lit or cartap hydrochloride 2gm/lit may be taken up.	Drain out excess water Monitor incidence of BPH and initiate Control measures for BPH Bufrofin 1.6ml/lit or Acephate 1.5 gm/lit Spraying should be done in evening times only	Drain out excess water If the paddy crop lost, fodder shortage would be severe, so fodder crops like pillipesara, cowpea, etc may be grown

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				
Sugarcane	Protective irrigation to a depth of 5 cm or through drip	Protective irrigation to a depth of 5 cm or through drip		
Cold wave				
Frost				
Hailstorm				
Cyclone				
Paddy	Drain out excess water Incase of loss of plant population survived hills are to be split into individual tillers and use for gap filling. Pests like Leaf folder and swarming caterpillar may emerge so monitor the pest and control measures like spraying of chloripyriphos 2.5 ml/lit or car tap hydrochloride 2gm/lit may be taken up.	Drain out excess water Monitor incidence of BPH and initiate Control measures for BPH Bufrofin 1.6ml/lit or Acephate 1.5 gm/lit Spraying shpuld be done in evening times only. In case of lodging staking of 3-4 hills may done	Drain out excess water. Control measures for BPH Spraying of Bufrofin 1.6ml/lit or Acephate 1.5 gm/lit In case of lodging staking of 3-4 hills may done	Spraying of 5% salt solution to prevent germination and discolouration of grain
Groundnut	Drain out the water as early as possible Inter cultivation as soon as possible for quick evaporation of excess moisture. Spraying with Poly feed 500gm/acre to correct nutrient deficiencies and enhance growth Spraying with carbendiazm 1gm /+ Mancozeb 3gm/lit as prophylactic measure against fungal diseases.	Drain out the water as early as possible Pests like Spodoptera may attack the crop . control measures like Thiodicarb 1gm/lit may be sprayed Spraying with carbendiazm 1gm /+ Mancozeb 3gm/lit as prophylactic measure against fungal diseases.	Drain out the water as early as possible . Spraying with carbendiazm 1gm /+ Mancozeb 3gm/lit as prophylactic measure against fungal diseases. Harvesting may be planned in case of advanced maturity stage.	Drain out the water as early as possible. Pluck the pods from plants and dry.
Mesta	Drain out water Spray 2% urea +1% Potash Incase of foot and stem rot occurrence Drench and spray the crop with COC 3gm/lit	Drain out the water as early as possible. In case of lodging lift the crop and stake the crop.	Drain out the water Harvesting may be planned in case of advanced maturity stage.	Use the excess water for retting process. Stack the sticks vertically To enhance retting of basal portion.
Maize	- Drain out the water as early as possible - In case of loss of plant population	- Drain out the water as early as possible - Inter cultivation as soon as	- Drain out the water as early as possible - Apply a booster dose	Drain out the water as early as possible.

	gap filling may be done for green cob purpose Spraying with 1% Multi K or 19:19:19 to correct nutrient deficiencies and enhance growth	possible for quick evaporation of excess moisture. - Apply a booster dose of 20-25kg of urea and 15kg of MOP per acre - Spraying with 1% Multi K or 19:19:19 to correct nutrient deficiencies and enhance growth	of 20-25kg of urea and 15kg of MOP per acre Spraying with 1% Multi K or 19:19:19 to correct nutrient deficiencies and enhance growth	. Harvesting may be planned in case of advanced maturity stage for green cob purpose
Sugarcane	- Drain out the water as early as possible - In case of loss of plant population Gap filling may be done to maintain optimum population	- Drain out the water as early as possible - Inter cultivation as soon as possible for quick evaporation of excess moisture. - Apply a booster dose of 20-25kg of urea and 15kg of MOP per acre	- Drain out the water as early as possible - Apply a booster dose of 20-25kg of urea and 15kg of MOP per acre - Propping may be done to the lodged canes	- Drain out the water as early as possible - Propping may be done to the lodged canes - Plan for early harvesting and send to the factory or for jaggery making
Horticulture crops – Fruits				
Mango	- Drain the excess water as soon as possible - Spray 1% KNO₃ or Urea 2% solution 2-3 times. - Wind damaged branches should be pruned using disinfected secatures and cut ends must be smeared with Bordeaux paste	- Drain the excess water as soon as possible - Spray 1% KNO₃ or Urea 2% solution 2-3 times. - Wind damaged branches should be pruned using disinfected secatures and cut ends must be smeared with Bordeaux paste	- Drain the excess water as soon as possible - Harvest the mature produce in a clear sunny day' - Wind damaged branches should be pruned using disinfected secatures and cut ends must be smeared with Bordeaux paste	- Store the fruits in well ventilated place temporarily before it can be marketed. - Market the fruits as soon as possible. - Grade the damaged or infected fruits. - Store the graded fruits in well ventilated place temporarily before it can be marketed.
Horticulture crops vegetables				
Chillies	Drain the excess water as soon as	Drain the excess water as soon	Drain the excess water as	Dry the pods on

	possible • Spray Urea 2% solution 2-3 times. • Topdressing of booster dose of 15 kg MOP + 30 kg Urea per acre as soon as possible. • Gap filling may be taken up if the plants are two weeks old and sowing window is still available for the crop. • In case of severe damage (considered as complete economical loss), and the contingency period is between June to August, sowing of best alternative crop must be taken up.	as possible • Spray Urea 2% solution 2-3 times. • Topdressing of booster dose of 15 kg MOP + 30 kg Urea per acre as soon as possible.	soon as possible • Harvest the matured fruits in a clear sunny day.	concrete floor immediately after the appearance of sunlight (or). • Use poly house solar driers for quick drying • Grade the pods and market as soon as possible. • Do not store such produce for long periods.
Spices and Plantation crops				
Areca nut , Oil palm and Coconut	• Planting should be done on mounts or bunds • Drainage system, suited to local conditions may be provided to remove surplus water from root zone • Relief drains [shallow] channels are opened at places where water accumulates and connected with main drain to remove water from the surface	• Drain the excess water as soon as possible • Apply booster dose of NPK fertilizers	• Drain the excess water as soon as possible • .Apply booster dose of NPK fertilizers • Harvest the mature nuts as soon as possible.	• Store the produce in well ventilated place temporarily before it can be market • Market the nuts as soon as possible.
Cashew	• Drain the excess water as soon as possible • Spray 1% KNO3 or Urea 2% solution 2-3 times.	• Drain the excess water as soon as possible • Spray 1% KNO3 or Urea 2% solution 2-3 times.	• Drain the excess water as soon as possible • Spray 1% KNO3 or Urea 2% solution 2-3 times. • Harvest the mature fruits as soon as possible	• Separate seed from the fruits and dry the seeds separately. • Store the fruits in well ventilated place temporarily before it can be marketed. • Market the fruits as soon as possible or use for the preparation of processed products.

2.5 Contingent strategies for Livestock, Poultry & Fisheries

2.5.1.1 Livestock

General contingency plans:

Before the event	During the event	After the event
Feed and fodder availability		
1.Conserving fodder/crop residues/ forest grass by silage / hay making either by individual or on community basis 2. Preparing complete diets and storing in strategic locations 3. Organize procurement of dry fodders / feed ingredients from surplus areas 4. Establish fodder banks and feed banks 5. Livestock relief camps during floods/cyclones must be planned in the vicinity of relief camps for people 6. Capacity building and preparedness	1.Organise relief camps 2.Supply silage / hay to farmers with productive stock on subsidized rates 3.Segregate old, weak and unproductive stock and send for slaughter 4. Supply mineral mixture to avoid deficiencies 5. Dry fodder must be offered to the livestock in little quantities for number of times 6.Concentrate feed or complete feed must be offered to only productive and young stock only	1. Capacity building to stake holders on drought /cyclone/flood mitigation in livestock sector 2. Promote fodder cultivation. 3. Flushing the stock to recoup 4. Avoid soaked and mould infected feeds / fodders to livestock 5. Replenish the feed and fodder banks 6.Promote fodder preservation techniques like silage / hay making
Drinking water		
1.Construct drinking water tanks in herding places, village junctions and in relief camp locations 2.Plan for sufficient number of tanks for water transportation 3.Identify bore wells, which can sustain demand. 4.Procure sufficient quantities of water Sanitizers	1.Regular supply of clean drinking water to all tanks 2.Cleaning the tanks in regular intervals 3.Keep the livestock away from contaminated flood/cyclone/stagnated waters 3.Add water sanitizers	1.Hand over the maintenance of the structures to panchayats 2.Sensitize the farming community about importance of clean drinking water

Health and disease Management		
1.Procure and stock emergency medicines and vaccines for important endemic diseases of the area 2. All the stock must be immunized for endemic diseases of the area 3. Carry out deworming to all young stock 4. Keep stock of bleaching powder and lime 5.Carry out Butax spray for control of external parasites 6.Identify the Clinical staff and trained paravets and indent for their services as per schedules 7.Identify the volunteers who can serve in need of emergency	1.Keep close watch on the health of the stock 2.Sick animals must be isolated and treated Separately. 3. Carry out deworming and spraying to all animals entering into relief camps 4. Clean the animal houses regularly and apply disinfectants. 5.Safe and hygienic disposal of dead animal carcasses 6. Organize with community daily lifting of dung from relief camps	1.Keep close surveillance on disease outbreak. 2.Undertake the vaccination depending on need 3.Keep the animal houses clean and spray disinfectants

2.5.1 Detailed contingent strategies for Livestock

	Suggested contingency measures		
	Before the event	During the event	After the event
Drought			
Feed and Fodder availability	<i>Stylosanthus hamata</i> and <i>Cenchrus ciliaris</i> as grass with <i>Leucaena leucocephala</i> as tree component (or suggest suitable similar system to your district) Top dressing of N in 2-3 split doses @ 20-25 kg N/ha in common property resources (CPRs) like temple lands, panchyat lands or private property resources (PPRs) like waste and degraded lands with the monsoon pattern for higher biomass production	Harvest and use biomass of dried up crops (Rice, Maize, Horse gram, Groundnut, black gram, sun hemp) material as fodder. Harvest the tree fodder (Neem, Subabul, Acasia, Pipal etc) and unconventional feeds resources available and use as fodder for livestock (LS). Available feed and fodder should be cut from CPRs and stall fed in order to reduce the energy requirements of the animals UMMB, hay, concentrates and vitamin & mineral	Concentrates supplementation should be provided to all the animals. The farmers may be advised to practice “flushing the stock” to recoup Short duration fodder crops of should be sown in unsown and crop failed areas where no further routine crop sowing is not possible Supply of quality seeds of fodder

	Promote cultivation of short duration fodder crops of sorghum/bajra/maize(UP chari, MP chari, HC-136, HD-2, GAI NT BAJRA, L-74, K-677, Ananad/African Tall, Kisan composite, Moti, Manjari, B1-7 and also sunhemp Chopping of fodder should be made as mandatory in every village through supply and establishment of good quality chaff cutters. Establishment of backed yard cultivation of para grass with drain water from bath room/washing area Harvesting and collection of perennial vegetation particularly grasses which grow during monsoon Proper drying, bailing and densification of harvested grass from previous season Creation of permanent fodder, feed and fodder seed banks in all drought prone villages	mixture should be transported to the needy areas from the reserves at the district level initially and latter stages from the near by districts. All the sugar cane tops and hay should be enriched with 2% Urea molasses solution or 1% common salt solution and fed to LS Herd should be split and supplementation should be given only to the highly productive and breeding animals Provision of emergency grazing/feeding (Cow-calf camps or other special arrangements to protect high productive & breeding stock) Motivate the farmers to mix the dry fodder with available kitchen waste while feeding Arrangements should be made for mobilization of small ruminants across the villages where no drought exits with subsidized road/rail transportation and temporary shelter provision for the shepherds Unproductive livestock should to be culled during severe drought Create transportation and marketing facilities for the culled and unproductive animals Supply silage and or hay on subsidized rates to the farmers having high productive stock Subsidized loans should be provided to the livestock keepers	varieties and motivating the farmers to cultivate at least 10% of their land holding for fodder production
--	--	--	---

Cyclone	Harvest all the possible wetted grain (rice/maize etc) and sugar cane tops and use as animal feed. Motivate the farmers to store a minimum quantity of hay (25-50 kg) and concentrates (10-25 kg) per animal in farmer's / LS keepers house/ shed for feeding the animals during cyclone. Stock of anti-diarrheal drugs and electrolytes should be made available for emergency transport Don't allow the animals for grazing in case of early forewarning (EFW) of cyclone Incase of EFW of severe cyclone, shift the animals to safer places.	Treatment of the sick, injured and affected animals through arrangement of mobile emergency veterinary hospitals / rescue animal health workers. Diarrhea out break may happen. Health camps should be organized In severe cases un-tether or let loose the animals Arrange transportation of highly productive animals to safer place Spraying of fly repellants in animal sheds	Repair of animal shed Deworm the animals through mass camps Vaccinate against possible disease out breaks like HS, BQ, FMD and PPR Proper dispose of the dead animals / carcasses by burning / deep burying (4-8 feet) with lime powder (1kg for small ruminants and 5kg for large ruminants) in pit Bleach / chlorinate (0.1%) drinking water or water resources Collect drowned crop material, dry it and store for future use Sowing of short duration fodder crops in unsown and water logged areas when crops are damaged and no chance to replant Application of urea (20-25kg/ha) in the inundated areas and CPR's to enhance the bio mass production.
Floods	In case of early forewarning (EFW), harvest all the crops (Maize, Rice, Horse gram, Groundnut) that can be useful as fodder in future (store properly) and also sugar cane tops Don't allow the animals for grazing if severe floods are forewarned Motivate the farmers to store a minimum required quantity of hay (25-50kg) and concentrates (25kgs) per animals in farmer / LS keepers house / shed for feeding animals during floods Arrangement for transportation of animals from low lying area to safer places and also for rescue animal health workers to get involve in rescue	Transportation of animals to elevated areas Stall feeding of animals with stored hay and concentrates Proper hygiene and sanitation of the animal shed In severe floods, un-tether or let loose the animals Emergency outlet establishment for required medicines or feed in each village Spraying of fly repellants in animal sheds	Repair of animal shed Bring back the animals to the shed Cleaning and disinfection of the shed Bleach (0.1%) drinking water / water sources Deworming with broad spectrum dewormers Vaccination against possible disease out breaks like HS, BQ, FMD and PPR Proper disposable of the dead animals / carcasses by burning / deep burying (4-8 feet) with lime powder (1kg for

	operations		small ruminants and 5kg for large ruminants) in pit Drying the harvested crop material and proper storage for use as fodder.
--	------------	--	---

Vaccination programme for cattle and buffalo:

Disease	Age and season at vaccination
Anthrax	In endemic areas only, Feb to May
Haemorrhagic septicaemia (HS)	May to June
Black quarter (BQ)	May to June
Foot and mouth disease (FMD)	July/August and November/December

Vaccination schedule in small ruminants (Sheep & Goat)

Disease	Season
Foot and mouth disease (FMD)	Preferably in winter / autumn
Peste des Petits Ruminants (PPR)	Preferably in January
Black quarter (BQ)	May / June
Enterotoxaemia (ET)	May
Haemorrhagic septicaemia (HS)	March / June

Sheep pox (SP)	November
----------------	----------

2.5.2 Poultry

	Suggested contingency measures		
	Before the event	During the event	After the event
Drought			
Shortage of feed ingredients	Storing of house hold grain like maize, broken rice, bajra etc, in to use as feed in case of severe drought	Supplementation only for productive birds with house hold grain Supplementation of shell grit (calcium) for laying birds Culling of weak birds	Supplementation to all survived birds
Drinking water		Use water sanitizers or offer cool drinking water	
Health and disease management	Culling of sick birds. Deworming and vaccination against RD and fowl pox	Mixing of Vit. A,D,E, K and B-complex including vit C in drinking water (5ml in one litre water)	Hygienic and sanitation of poultry house Disposal of dead birds by burning / burying with lime powder in pit
Floods			
Shortage of feed ingredients	In case of early forewarning of floods, shift the birds to safer place Storing of house hold grain like maize, broken rice, bajra etc,	Use stored feed as supplement Don't allow for scavenging Culling of weak birds	Routine practices are followed Deworming and vaccination against RD
Drinking water		Use water sanitizers or offer cool drinking	

		water	
Health and disease management	In case of EFW, add antibiotic powder (Terramycin/Ampicilline/ Ampiclox etc., 10g in one litre) in drinking water to prevent any disease outbreak	Prevent water logging surrounding the sheds through proper drainage facility Assure supply of electricity by generator or solar energy or biogas Sprinkle lime powder to prevent ammonia accumulation due to dampness	Sanitation of poultry house Treatment of affected birds Disposal of dead birds by burning / burying with lime powder in pit Disposal of poultry manure to prevent protozoal problem Supplementation of coccidiostats in feed Vaccination against RD
Cyclone			
Shortage of feed ingredients	In case of EFW, shift the birds to safer place Storing of house hold grain like maize, broken rice, bajra etc, Culling of weak birds	Use stored feed as supplement Don't allow for scavenging Protect from thunder storms	Routine practices are followed
Drinking water		Use water sanitizers or offer cool drinking water	
Health and disease management	In case of EFW, add antibiotic powder in drinking water to prevent any disease outbreak	Sanitation of poultry house Treatment of affected birds Prevent water logging surrounding the sheds Assure supply of electricity Sprinkle lime powder (5-10g per square feet) to prevent ammonia accumulation due to dampness	Disposal of dead birds by burning / deep burying with lime powder in pit Disposal of poultry manure to prevent protozoal problem Supplementation of coccidiostats in feed Vaccination against Ranikhet Disease (0.5ml S/c)
Heat wave and cold wave		NA	

2.5.3 Fisheries/ Aquaculture:

	Suggested contingency measures		
	Before the event ^a	During the event	After the event
1) Drought			
A. Capture			
Marine	No intervention	No intervention	No intervention
Inland			
(i) Shallow water depth due to insufficient rains/inflow	Stocking of advnced fingerlings in half or even less than the normal stocking density or stocking of common carp seed	Immediate harvesting or decreasing the density commensurate with the water quantity.	De weeding and deepening of tank to ensure retention of water for a longer period and provision of employment under MGNREGP
(ii) Changes in water quality	Regular monitoring of water quality parameters and application of geolites, soil probiotics, etc to maintain water qaulity	Immediate harvesting or changing the water quality by application of sanitisers.	Removal of top layer, deep ploughing of tank and application of lime
(iii) Any other			
B. Aquaculture			
(i) Shallow water in ponds due to insufficient rains/inflow	Crop holiday or going for stocking of yearlings by reducing the density according to availability of water	Harvesting of fish and leaving the pond fallow till next season	Removal of top layer, deep ploughing of tank and application of lime
(ii) Impact of salt load build up in ponds / change in water quality	Stocking of salinity tolerant fish / shrimp, application of geolites and other buffers	Frenquent change of water with fresh water	Frequent draining of the pond with fresh water, removal of top layers
(iii) Any other			
2) Floods			
A. Capture			
Marine	No intervention	No intervention	No intervention

Inland			
(i) Average compensation paid due to loss of human life	Shifting the people from low lying areas to relief camps	Deployment of specially trained persons for rescue operations by providing life bouys, jackets, ropes, boats, etc	Payment sufficient ex-gratia to the families
(ii) No. of boats / nets/damaged	Shifting and relocating boats and nets to safer places when warnings are issued, to avoid fishing, etc	Shifting and relocating boats and nets to safer places	Assessment of damages to boats and nets and provision of boats and nets for restoration of livelihoods
(iii) No. of houses damaged	Avoidance of construction of houses in flood prone areas, construction of pucca houses at elevated places,	Shifting of people by relief boats to the relief camps	Assessment of damages to houses and provision of compensation in case of partial damage and sanction house under existing schemes
(iv) Loss of stock	Avoidance of surface species like catla, silver carp since they are vulnerable in tanks prone to floods, erection of nets across the spill way or just beyond it	Erection of nets at spill ways	Taking up compensatory stocking
(v) Changes in water quality		When dissolved oxygen levels go down, aerators, recirculation of water, etc are to be attempted to maintain DO levels, going for partial harvest, etc	
(vi) Health and diseases	Sometimes there may be heavy accumulation of nutrients and organic matter.	There may be break out of Hemorrhagic septicemia. Addition of antibiotics like Chloro Tetra Cycline or Oxy Tetra Cycline to the feed to control the disease	Removal of weeds, top layer of soil, deep ploughing of tank and application of lime, exposing to sun light
B. Aquaculture			
(i) Inundation with flood water	Raising and rivetting the bunds, construction of spill way to release	Continuous pumping of excess water, erection of nets low lying	Strengthening of bunds, excavating channels along the

	excess water, erection of nets to avoid escape of fish	areas	sides of the ponds for free escape of water
(ii) Water continuation and changes in water quality		When dissolved oxygen levels go down, aerators, recirculation of water, etc are to be attempted to maintain DO levels, going for partial harvest, etc	
(iii) Health and diseases	Sometimes there may be heavy accumulation of nutrients and organic matter.	There may be break out of Hemorrhagic septicemia. Addition of antibiotics like Chloro Tetra Cycline or Oxy Tetra Cycline to the feed to control the disease	Removal of weeds, top layer of soil, deep ploughing of tank and application of lime, exposing to sun light
(iv) Loss of stock and inputs (feed, chemicals etc)	Advance erection of nets, strengthening of bunds where they are prone to breaches, harvesting or reducing the density	Suspension of feeding, application of organic manures	Compensatory stocking, assessment of values and payment of subsidy on inputs
(v) Infrastructure damage (pumps, aerators, huts etc)	Insuring pond, accessories, etc., Shifting of aerators, pumps soon after warnings are issued	Relocating pumps, aerators to elevated places	Assessment of damages and provision of them on subsidy
(vi) Any other			
3. Cyclone / Tsunami			
A. Capture			
Marine			
(i) Average compensation paid due to loss of fishermen lives	Avoidance of fishing, preventing fishermen from venturing into sea, carrying of safety equipment and VHF sets, shifting fishermen from vulnerable areas to relief camps, etc	To ensure the return of fishing boats on long voyages, provision of information on such boats to coast Guard	Payment sufficient ex-gratia to the families

(ii) Avg. no. of boats / nets/damaged	Avoidance of fishing when warnings are issued, shifting of boats and nets to safe places	Shifting and relocating boats and nets to safer places	Assessment of damages to boats and nets and provision of boats and nets for restoration of livelihoods
(iii) Avg. no. of houses damaged	Avoidance of houses in Coastal Regulation Zone, designing of houses to withstand impact of turbulent wind and water	Shifting of people by relief boats to the relief camps	Assessment of damages to houses and provision of compensation in case of partial damage and sanction house under existing schemes
Inland	Erection of protective nets across the surplus weir to prevent fish loss due to overflows	Continuous monitoring to prevent or minimise escape of fish along with surplus water	Compensatory stocking of seed
B. Aquaculture			
(i) Overflow / flooding of ponds	The design of the pond must be in such a manner as to bail out surplus water and to prevent loss of standing crop	Continuous monitoring to prevent or minimise escape of fish along with surplus water	Compensatory stocking of seed
(ii) Changes in water quality (fresh water / brackish water ratio)	Recirculation water to replenish and ensure sufficient dissolved oxygen levels in the pond. Maintenance of salinity levels by pumping in water from creeks.	Continuation of the same process.	Restoration of physical and chemical parameters
(iii) Health and diseases	Removal of stress causing factors to maintain the health of the animal	Removal of stress causing factors to maintain the health of the animal	Restoration of physical and chemical parameters
(iv) Loss of stock and inputs (feed, chemicals etc)	Preventive nets must be erected to minimise loss of stock	Continuation of the same process.	Compensatory stocking of seed
(v) Infrastructure damage (pumps, aerators, shelters/huts etc)	Pumps, aerators, etc must be protected by moving them to safe locations	To avoid use of aerators, pumps and other appliances	Overhauling of the equipment to prevent from being damaged

(vi) Any other			
4. Heat wave and cold wave			
A. Capture			
Marine	Avoidance of fishing	Avoidance of fishing	No intervention
Inland	Monitoring dissolved oxygen levels	Monitoring dissolved oxygen levels	No intervention
B. Aquaculture			
(i) Changes in pond environment (water quality)	Reduction of biomass by partial harvest in the event of heat as the DO levels will be very low.	Avoidance of fishing	Compensatory stocking of seed and restoration of all physical and chemical parameters
(ii) Health and Disease management	Removal of stress causing factors to maintain the health of the animal	Removal of stress causing factors to maintain the health of the animal	Compensatory stocking of seed and restoration of all physical and chemical parameters
(iii) Any other			

Contingency Plans for Rabi Crops – Srikakulam

1. Rainfall Information

Month	Srikakulam	
	Normal rainfall	No of rainy days
October	182.8	4
November	90.6	2
December	2.6	0
January	6.1	0
February	20.0	2
March	20.8	2
Total	322.9	10

	Oct – Dec	Jan – Mar
(a) Normal rainfall during <i>Rabi</i> season	: 276.0	46.9
(b) Number of rainy days	: 6	4

2. Rabi crops cultivated

2a Area Production statistics

S. No.	Cropping System	Crop name	Area '000 ha	Production '000 t	Productivity Kg/ha
1	Paddy- Black gram	Black gram	44.763	32.476	740
2	Paddy –Green gram	Green gram	32.659	20.837	710
3	Paddy - Maize	Maize	9.023	123.290	8600
4	Paddy - Groundnut	Groundnut	4.875	6.560	1550

5	Paddy - Sesame	Sesame	5.142	2.146	470
6	Paddy – Paddy	Paddy	3.467	23.285	5600
7	Maize – Maize				
8	Groundnut -groundnut				

2b Source wise (Water) cultivated area

S. No	Crop name	Cultivated area under ('000 ha)			
		Residual moisture condition/rainfed	Ground water irrigated	Tank irrigated	Canal irrigated
1	Blackgram	40.2867	4.4763		
2	Greengram	29.3931	3.2659		
3	Maize		5.864		3.159
4	Groundnut		4.875		
5	Sesamum		.7710		4.730
			1.040	1.871	1.247

3. Sowing window information

S. No.	Farming situation	Cropping system	Crop name	Optimum sowing window (Please mention along with week i.e., 2 nd week of Oct-4 th week of Nov/etc.)
1	Irrigated Red Clay loams	Paddy- Black gram	Black gram	Rice fallows: II fortnight of November to 1st fortnight of December
2		Paddy –Green gram	Green gram	Rice fallows: II fortnight of November to 1st fortnight of December
3		Paddy - Maize	Maize	Rice fallows: II fortnight of November to 1st fortnight of December
4		Paddy - Groundnut	Groundnut	I fortnight of November to I fortnight of December 1 st fortnight of January (SKLM)
5		Paddy - Sesame	Sesame	January 2 nd fort night to February 1 st fortnight

6		Paddy – Paddy	Paddy	November 1 st FN to December 1 st FN – Nursery December, 15 th to January 15 th – Transplanting
7		Sugarcane	Sugarcane	1 st week of December to 2 nd week of February
8	Irrigated Sandy loams	Maize -Maize	Maize	Rice fallows: 1 st week of November to 4 th week of November
9		Ground nut/Groundnut	Groundnut	Rice fallows: 1 st week of November to 4 th week of November
10	Rain fed clay loams	Mesta- -Horse gram	Horsegram	3 rd week of October to 2 th week of November
11		Cotton-	Cotton	Cotton Crop will be extended up 2 nd fortnight of February
12	Rainfed sandy loams	Maize -Green gram	Greengram	1 st fortnight of November to 1 st fortnight of December
13		Groundnut- Greengram /Horsegram	Greengram/ Horsegram	3 rd week of October to 2 th week of November

4. Contingency measures Field crops

For crops grown with residual moisture i.e., under rainfed condition:

(a) Excess residual moisture

S. No	Soil type	Cropping system	Crop name	Crop Suggested	Sowing Window	Variety	Agronomic Management practices
1	Red Clay loams	Paddy-Black gram	Black gram	No change	Rice fallows: II fortnight of November to 1 st fortnight of December	TBG-104 GBG-1 LBG -752 LBG -787 PU-31	Optimum seed rate 16-18 kg/Acre and seed treatment with imidacloprid @ 5 ml/kg Spraying of copper oxy chloride or

							mancozeb etc to manage fungal diseases.
2		Paddy – Green gram	Green gram	No change	Rice fallows: II fortnight of November to 1st fortnight of December	LGG-460 WGG- 42 IPM 2-14	Optimum seed rate 12-14kg/acre and seed treatment with imidacloprid @ 5 ml/kg Foliar spray of urea 2 % or 1% KNO ₃
3		Paddy – Maize/Ragi	Maize/ Ragi	No change	Rice fallows: II fortnight of November to 1st fortnight of December	Pvt. Hybrids	Delayed sowings can be taken up by adopted Zero tillage maize
4	Sandy loams	Mesta- - Horse gram	Horsegram	No change	3 rd week of October to 2 th week of November		
5	Rainfed sandy loams	Maize - Green gram	Greengram	No change	1 st fortnight of November to 1 st fortnight of December	LGG-460 WGG-42 IPM 2-14	Optimum seed rate (6-8 Kg/acre) and seed treatments with imidacloprid @ 5 ml /kg
6		Groundnut- Greengram /Horsegram	Greengram/ Horsegram	No change	3 rd week of October to 2 th week of November	LGG-460 WGG- 42 IPM 2-14	Optimum seed rate (6-8kg/acre) and seed treatments with imidacloprid @ 5 ml /kg

(b) Less than optimum moisture i.e., 25% less than normal, which can happen due to insufficient rainfall during September/October months. Deficit of 20-40% rainfall

S. N o.	Soil type	Cropping system	Crop name	Crop Suggested	Sowing Window	Variety	Agronomic Management practices
1	Red	Paddy-	Black gram	No change	Rice fallows: II fortnight of	TBG-104	Optimum seed rate 16-18Kg/Acre

	Clay loams	Black gram			November to 1st fortnight of December	GBG-1 LBG -752 LBG-787 PU-31	and seed treatment with imidacloprid @ 5 ml /kg Foliar spray of urea 2 % or KNO ₃ 1% spray 2-3 times at regular intervals
2		Paddy – Green gram	Green gram	No change	Rice fallows: II fortnight of November to 1st fortnight of December	LGG-460 WGG- 42 IPM 2-14	Optimum seed rate 12-14kg/acre and seed treatment with imidacloprid @ 5 ml /kg Foliar spray of urea 2 % or KNO ₃ 1% spray 2-3 times at regular intervals,
3		Paddy - Maize	Maize	Ragi	Rice fallows: II fortnight of November to 1 st fortnight of December	Chaitanya, Champavathi, Godavari, Bharathi	Foliar spray of urea 2 % or KNO ₃ 1%, 2-3 times at regular intervals,
4		Mesta- - Horse gram	Horsegram	No change	3 rd week of October to 2 nd week of November	PDM -1, Palem 1	Optimum seedrate (12-15kg/acre) Foliar spray of urea 2 % or KNO ₃ 1%, 2-3 times at regular intervals,
5	Sandy loams	Maize - Green gram	Greengram	No change	1 st fortnight of November to 1 st fortnight of December	LGG-460 WGG- 42 IPM 2-14	Optimum seed rate (8-10 kg/acre) and seed treatments with imidacloprid @ 5 ml /kg Foliar Nutrition with 19:19:19
6		Groundnut - Greengram /Horsegram	Greengram/ Horsegram	No change	3 rd week of October to 2 th week of November	LGG-460 WGG- 42 IPM 2-14	Optimum seed rate (8-10 kg/acre) and seed treatments with imidacloprid @ 5 ml /kg

(c) Severe limitation in moisture. Deficit of rainfall during September/October months by more than 40%.

S. No	Soil type	Cropping system	Crop name	Crop Suggested	Sowing Window	Variety	Agronomic Management practices
1	Red Clay loams	Paddy-Black gram	Black gram	Greengram	Rice fallows: II fortnight of November to 1st fortnight of December	LGG-460 WGG- 42 IPM 2-14	Optimum seed rate 12-14 kg/Acre and seed treatment with imidacloprid @ 5 ml /kg Foliar spray of urea 2 % or KNO ₃ 1%, 2-3 times at regular intervals, Sucking pest management to be followed. Acephate @ 1.5g/l or Monocrotophos @ 1.6ml/l or Imidacloprid @ 0.4ml/l
2		Paddy – Green gram	Green gram	No change	Rice fallows: II fortnight of November to 1st fortnight of December	LGG-460 WGG-42 IPM 2-14	Optimum seed rate 12-14kg/acre and seed treatment with imidacloprid @ 5 ml /kg Foliar spray of urea 2 % or 1%,KNO ₃
3		Paddy - Maize	Maize	Greengram	Rice fallows: II fortnight of November to 1st fortnight of December	LGG-460 WGG- 42 IPM 2-14	Optimum seed rate 12-14 Kg/Acre and seed treatment with imidacloprid @ 5 ml /kg Foliar spray of urea 2 % or KNO ₃ 1%, 2-3 times at regular

							intervals, Sucking pest management to be followed. Acephate @ 1.5g/l or Monocrotophos @ 1.6ml/l or Imidacloprid @ 0.4ml/l
4	Sandy loams	Mesta- - Horse gram	Horsegram	No change	3 rd week of October to 2 th week of November	PDM -1, Palem 1	Optimum seed rate (12-15kg/acre) Foliar spray of urea 2 % or KNO ₃ 1%, 2-3 times at regular intervals,
5	Rainfed sandy loams	Maize - Green gram	Greengram	No change	1 st fortnight of November to 1 st fortnight of December	LGG-460 WGG-42 IPM 2-14	Optimum seed rate 12-14 Kg/Acre and seed treatment with imidacloprid @ 5 ml /kg Foliar spray of urea 2 % or KNO ₃ 1%, 2-3 times at regular intervals, Sucking pest management to be followed. Acephate @ 1.5g/l or Monocrotophos @ 1.6ml/l or Imidacloprid @ 0.4ml/l
6		Groundnut- Greengram /Horsegram	Greengram/ Horsegram	Horsegram	3 rd week of October to 2 th week of November	PDM -1, Palem 1	Optimum seed rate (12-15kg/acre) Foliar spray of urea 2 % or KNO ₃ 1%, 2-3 times at regular

							intervals,
--	--	--	--	--	--	--	------------

For crops grown with groundwater

(a) Above normal rainfall in *Kharif* coupled with good distribution

S. No	Soil type	Cropping system	Crop name	Crop Suggested	Sowing Window	Variety	Agronomic Management practices
1	Red clay loams	Paddy - Maize	Maize	No change	Rice fallows: II fortnight of November to 1st fortnight of December	Pvt. Hybrids	Sowings can be taken up by adopted Zero tillage maize
2		Paddy - Groundnut	Groundnut	No change	I fortnight of November to I fortnight of December 1 st fortnight of January (SKLM)	K 6; Dharani Nityaharita	Seed treatment with tebuconazole @ 1g/l for collar rot management
3		Paddy - Sesame	Sesame	No change	January 2 nd fortnight to February 1 st fortnight	YLM 66, YLM 11	Optimum seed rate (2-3kg/acre)
4		Paddy – Paddy	Paddy	No change	November 1 st FN to December 1 st FN – Nursery December, 15 th to January 15 th – Transplanting	MTU 1156 MTU 1010 MTU 1121	Water management to be properly adopted. (Alternate wetting and drying system of irrigation)
5	Sandy loams	Maize - Maize	Maize	No change	Rice fallows: 1 st week of November to 4 th week of November	Pvt. Hybrids	Delayed sowings can be taken up by facilitating proper drainage
6		Ground nut/ Groundnut	Groundnut	No change	Rice fallows: 1 st week of November to 4 th week of November	K6; Dharani, Nityaharita	Seed treatment with tebuconazole @ 1g/l for collar rot management Proper drainage may be provided

7		Sugarcane	Sugarcane	No change	1 st FN of December to 2 nd FN of January	87 A 298 86 V 96 2003 V 46 2000 A 225 2001 A 63 93 A 145	Sett treatment with propiconazole @ 1ml/ + Malathion @ 2ml/l Gap filling in ratoon crop
8	sandy loams	Maize - Green gram	Greengram	No change	1 st fortnight of November to 1 st fortnight of December	LGG-460 WGG-37, 42 IPM 2-14	Optimum seed rate (8-10kg/acre) and seed treatments with imidacloprid @ 5 ml /kg
9		Groundnut - Greengram /Horsegram	Greengram /Horsegram	No change	3 rd week of October to 2 th week of November	LGG-460 WGG-37, 42 IPM 2-14	Optimum seed rate (8-10kg/acre) and seed treatments with imidacloprid @ 5 ml /kg

(b) Normal rainfall

S. No	Soil type	Cropping system	Crop name	Crop Suggested	Sowing Window	Variety	Agronomic Management practices
1	Red clay loams	Paddy - Maize	Maize	No change	Rice fallows: II fortnight of November to 1st fortnight of December	Pvt. Hybrids	Sowings can be taken up by adopted Zero tillage maize
2		Paddy - Groundnut	Groundnut	No change	I fortnight of November to I fortnight of December 1 st fortnight of January (SKLM)	K 6; Dharani Nityaharita	Seed treatment with tebuconazole @ 1g/l for collar rot management
3		Paddy - Sesame	Sesame	No change	January 2 nd fortnight to February 1 st fortnight	YLM 66, YLM 11	Optimum seed rate (2-3kg/acre)

4		Paddy – Paddy	Paddy	No change	November 1 st FN to December 1 st FN – Nursery December, 15 th to January 15 th – Transplanting	MTU 1156 MTU 1010 MTU 1121	Water management to be properly adopted. (Alternate wetting and drying system of irrigation)
5		Sugarcane	Sugarcane	No change	1 st FN of December to 2 nd FN of January	87 A 298 86 V 96 2003 V 46 2000 A 225 2001 A 63 93 A 145	Sett treatment with propiconazole @ 1ml/ + Malathion @ 2ml/l Gap filling in ratoon crop
6	Sandy loams	Maize - Maize	Maize	No change	Rice fallows: 1 st week of November to 4 th week of November	Pvt. Hybrids	Delayed sowings can be taken up by facilitating proper drainage
7		Groundnut/ Groundnut	Groundnut	No change	Rice fallows: 1 st week of November to 4 th week of November	K6; Dharani, Nityaharitha	Seed treatment with tebuconazole @ 1g/l for collar rot management Proper drainage may be provided
8	Sandy loams	Maize - Green gram	Greengram	No change	1 st fortnight of November to 1 st fortnight of December	LGG-460 WGG-37, 42 IPM 2-14	Optimum seed rate (8-10kg/acre) and seed treatments with imidacloprid @ 5 ml /kg
9		Groundnut - Greengram /Horsegram	Greengram /Horsegram	No change	3 rd week of October to 2 th week of November	LGG-460 WGG-37, 42 IPM 2-14	Optimum seed rate (8-10kg/acre) and seed treatments with imidacloprid @ 5 ml /kg

(c) Deficient rainfall in *Kharif* season (25-50% deficient)

S. No	Soil type	Cropping system	Crop name	Crop Suggested	Sowing Window	Variety	Agronomic Management practices
1	Red Clay loams	Paddy-Black gram	Black gram	Greengram	Rice fallows: II fortnight of November to 1st fortnight of December	LGG-460 WGG- 42 IPM 2-14	Optimum seed rate 12-14 Kg/Acre and seed treatment with imidacloprid @ 5 ml/kg Foliar spray of urea 2 % or KNO ₃ 1%, 2-3 times at regular intervals, Sucking pest management to be followed. Acephate @ 1.5g/l or Monocrotophos @ 1.6ml/l or Imidacloprid @ 0.4ml/l
2		Paddy – Green gram	Green gram	No change	Rice fallows: II fortnight of November to 1st fortnight of December	LGG-460 WGG- 42 IPM 2-14	Optimum seed rate 12-14 Kg/Acre and seed treatment with imidacloprid @ 5 ml/kg Foliar spray of urea 2 % or KNO ₃ 1%, 2-3 times at regular intervals, Sucking pest management to be followed. Acephate @ 1.5g/l or Monocrotophos @ 1.6ml/l or Imidacloprid @ 0.4ml/l
3		Paddy - Maize	Maize	Ragi	Rice fallows: II fortnight of November to 1 st fortnight of December	Chaitanya, Champavathi, Godavari,	Foliar spray of urea 2 % or KNO ₃ 1%, 2-3 times at regular intervals,

						Bharathi	
4		Paddy - Groundnut	Groundnut	Greengram	Rice fallows: II fortnight of November to 1st fortnight of December	LGG-460 WGG- 42 IPM 2-14	Optimum seed rate 12-14 Kg/Acre and seed treatment with imidacloprid @ 5 ml/kg Foliar spray of urea 2 % or KNO ₃ 1%, 2-3 times at regular intervals, Sucking pest management to be followed. Acephate @ 1.5g/l or Monocrotophos @ 1.6ml/l or Imidacloprid @ 0.4ml/l
5		Paddy - Sesame	Sesame	No change	January 2 nd fort night to February 1 st fortnight	YLM 66, YLM 11, 17	Optimum seed rate (2-3 kg/acre) Foliar spray of urea 2 % or KNO ₃ 1%, 2-3 times at regular intervals,
6	Sandy loams	Maize - Maize	Maize	Greengram	Rice fallows: II fortnight of November to 1st fortnight of December	LGG-460 WGG- 42 IPM 2-14	Optimum seed rate 12-14 kg/Acre and seed treatment with imidacloprid @ 5 ml/kg Foliar spray of urea 2% or KNO ₃ 1%, 2-3 times at regular intervals, Sucking pest management to be followed. Acephate @ 1.5g/l or Monocrotophos @ 1.6ml/l or Imidacloprid @ 0.4ml/l
7		Ground nut/Groun	Groundnut	No change	Rice fallows: 1 st week of November to 4 th week of	K6; Dharani, Nityaharitha	Strip irrigation or sprinkler irrigation at critical stages.

		dnut			November		
8		Mesta- - Horse gram	Horsegram	No change	3 rd week of October to 2 th week of November	PDM 1; Palem 1	Optimum seed rate (12-15 kg/acre)
9	sandy loams	Maize - Green gram	Greengram	No change	1 st fortnight of November to 1 st fortnight of December	LGG-460 WGG- 42 IPM 2-14	Optimum seed rate and seed treatments with imidacloprid @ 5 ml /kg
10		Groundnut - Greengram /Horsegram	Greengram /Horsegram	No change	3 rd week of October to 2 th week of November	LGG-460 WGG-37, 4 IPM 2-414 TM96-2	Optimum seed rate and seed treatments with imidacloprid @ 5 ml /kg Foliar spray of urea 2 % or KNO ₃ 1%, 2-3 times at regular intervals, Sucking pest management to be followed. Acephate @ 1.5g/l or Monocrotophos @ 1.6ml/l or Imidacloprid @ 0.4ml/l

(d) Scanty rainfall in *Kharif* season

S. No	Soil type	Cropping system	Crop name	Crop Suggested	Sowing Window	Variety	Agronomic Management practices
1	Red Clay loams	Paddy- Black gram	Black gram	Greengram	Rice fallows: II fortnight of November to 1st fortnight of December	LGG-460 WGG- 42 IPM 2-14	Optimum seed rate 12-14 Kg/Acre and seed treatment with imidacloprid @ 5 ml /kg Foliar spray of urea 2 % or KNO ₃ 1%,

							2-3 times at regular intervals, Sucking pest management to be followed. Acephate @ 1.5g/l or Monocrotophos @ 1.6ml/l or Imidacloprid @ 0.4ml/l
2		Paddy – Green gram	Green gram	No change	Rice fallows: II fortnight of November to 1st fortnight of December	LGG-460 WGG- 42 IPM 2-14	Optimum seed rate 12-14 Kg/Acre and seed treatment with imidacloprid @ 5 ml /kg Foliar spray of urea 2 % or KNO ₃ 1%, 2-3 times at regular intervals, Sucking pest management to be followed. Acephate @ 1.5g/l or Monocrotophos @ 1.6ml/l or Imidacloprid @ 0.4ml/l
3		Paddy - Maize	Maize	Greengram	Rice fallows: II fortnight of November to 1st fortnight of December	LGG-460 WGG- 42 IPM 2-14	Optimum seed rate 12-14 Kg/Acre and seed treatment with imidacloprid @ 5 ml/kg Foliar spray of urea 2 % or KNO ₃ 1%, 2-3 times at regular intervals, Sucking pest management to be followed. Acephate @ 1.5g/l or Monocrotophos @ 1.6ml/l or Imidacloprid @ 0.4ml/l
4		Paddy - Groundnut	Groundnut	Greengram	Rice fallows: II fortnight of November to 1st fortnight of December	LGG-460 WGG- 42 IPM 2-14	Optimum seed rate 12-14 Kg/Acre and seed treatment with imidacloprid

							@ 5 ml /kg Foliar spray of urea 2 % or KNO₃ 1%, 2-3 times at regular intervals, Sucking pest management to be followed. Acephate @ 1.5g/l or Monocrotophos @ 1.6ml/l or Imidacloprid @ 0.4ml/l
5		Paddy - Sesame	Sesame	No change	January 2 nd fort night to February 1 st fortnight	YLM 66, YLM 11	Strip or sprinkler irrigation may be provided Foliar spray of urea 2 % or KNO₃ 1%, 2-3 times at regular intervals
6	Sandy loams	Maize - Maize	Maize	Greengram	Rice fallows: II fortnight of November to 1st fortnight of December	LGG-460 WGG- 42 IPM 2-14	Optimum seed rate 12-14 Kg/Acre and seed treatment with imidacloprid @ 5 ml /kg Foliar spray of urea 2 % or KNO₃ 1%, 2-3 times at regular intervals, Sucking pest management to be followed. Acephate @ 1.5g/l or Monocrotophos @ 1.6ml/l or Imidacloprid @ 0.4ml/l
7		Ground nut/Groundnut	Groundnut	Greengram	Rice fallows: II fortnight of November to 1st fortnight of December	LGG-460 WGG- 42 IPM 2-14	Optimum seed rate 12-14 Kg/Acre and seed treatment with imidacloprid @ 5 ml /kg Foliar spray of urea 2 % or KNO₃ 1%, 2-3 times at regular intervals, Sucking pest management to be

							followed. Acephate @ 1.5g/l or Monocrotophos @ 1.6ml/l or Imidacloprid @ 0.4ml/l
8	Sandy loams	Maize - Green gram	Greengram	No change	1 st fortnight of November to 1 st fortnight of December	LGG-460 WGG- 42 IPM 2-14	Optimum seed rate 12-14 Kg/Acre and seed treatment with imidacloprid @ 5 ml /kg Foliar spray of urea 2 % or KNO ₃ 1%, 2-3 times at regular intervals, Sucking pest management to be followed. Acephate @ 1.5g/l or Monocrotophos @ 1.6ml/l or Imidacloprid @ 0.4ml/l
9		Groundnut - Greengram /Horsegram	Greengram /Horsegram	Horsegram	3 rd week of October to 2 th week of November	PDM -1, Palem 1	Optimum seed rate (12-15kg/acre) Foliar spray of urea 2 % or KNO ₃ 1%, 2-3 times at regular intervals,

For crops grown with Canal Irrigation: The scenario would be based on the storage available in the reservoirs.

a. Limited release of water

S. No	Soil type	Cropping system	Crop name	Crop Suggested	Sowing Window	Variety	Agronomic Management practices
1	Red Clay	Paddy- Black gram	Black gram	No change	Rice fallows: II fortnight of November to 1st fortnight of	TBG-104 GBG-1	Optimum seed rate 16-18Kg/Acre and seed treatment with

	loams				December	LBG -752 LBG -787 PU-31	imidacloprid @ 5 ml /kg Spraying of copper oxy chloride or mancozeb etc to manage fungal diseases.
2		Paddy – Green gram	Green gram	No change	Rice fallows: II fortnight of November to 1st fortnight of December	LGG-460 WGG- 42 IPM 2-14	Optimum seed rate 12-14kg/acre and seed treatment with imidacloprid @ 5 ml /kg Foliar spray of urea 2 % or 1%,KNO ₃
3		Paddy – Maize / Ragi	Maize / Ragi	Maize	Rice fallows: II fortnight of November to 1st fortnight of December	Pvt. Hybrids	Adopt Zero tillage maize cultivation Alternate row irrigation Weed free condition at early stage of the crop
4				Ragi		Chaitanya, Champavat hi, Godavari, Bharathi	Sprinkler or strip irrigation at critical stages. Foliar spray of urea 2 % or KNO ₃ 1%, 2-3 times at regular intervals,
5		Paddy – Sesame	Sesame	No change	January 2 nd fort night to February 1 st fortnight	YLM 66, YLM 11, 17	Strip or sprinkler irrigation may be provided Foliar spray of urea 2 % or KNO ₃ 1%, 2-3 times at regular intervals
6	Sandy loams	Maize – Maize	Maize	Greengram	1 st fortnight of November to 1 st fortnight of December	LGG-460 WGG- 42	Optimum seed rate 12-14 Kg/Acre and seed treatment with

						IPM 2-14	imidacloprid @ 5 ml /kg Foliar spray of urea 2 % or KNO ₃ 1%, 2-3 times at regular intervals, Sucking pest management to be followed. Acephate @ 1.5g/l or Monocrotophos @ 1.6ml/l or Imidacloprid @ 0.4ml/l
7		Groundnut – Groundnut	Groundnut	Sorghum	2 nd week of Dec to 4 th week of December	CSH 14, NTJ 5 NTJ 15 (Fodder)	Optimum seed rate (4-5kg/acre)

b. Delayed release of water

Recommendation for head reach, middle and Tail and points are to be given.

Head reach:

S. No	Soil type	Cropping system	Crop name	Crop Suggested	Sowing Window	Variety	Agronomic Management practices
1	Red Clay loams	Paddy – Paddy	Paddy	Maize	2 nd FN of December to 1 st FN of January	Pvt. Hybrids	Alternate row irrigation Weed free condition at early stage of the crop
2			Paddy	Sunflower	2 nd FN of December to 1 st FN of January	KBSH 44 NDSH 1012 and Pvy. Hybrids	Strip irrigation at critical stages

3		Paddy- Black gram	Black gram	Sunhemp for Seed purpose	Rice fallows: II fortnight of November to 1st fortnight of December	Local available vtys.	Optimum seed rate 16-18 kg/acre and seed treatment with imidacloprid @ 5 ml /kg Strip irrigation at critical stages Foliar spray of urea 2 % or 1% KNO ₃
4		Paddy – Maize / Ragi	Maize	Maize	Rice fallows: II fortnight of November to 1st fortnight of December	Pvt. Hybrids	Adopt Zero tillage maize cultivation Alternate row irrigation Weed free condition at early stage of the crop
5	Sandy loams	Maize – Maize	Maize	Maize	Rice fallows: II fortnight of November to 1st fortnight of December	Pvt. Hybrids	Alternate row irrigation Weed free condition at early stage of the crop
6		Groundnut – Groundnut	Groundnut	Sesame	January 2 nd fort night to February 1 st fortnight	YLM 66, YLM 11, 17	Strip or sprinkler irrigation may be provided Foliar spray of urea 2 % or KNO ₃ 1%, 2-3 times at regular intervals

Middle and Tailend

S. No	Soil type	Cropping system	Crop name	Crop Suggested	Sowing Window	Variety	Agronomic Management practices
1	Red Clay loams	Paddy – Paddy	Paddy	Sunflower	2 nd FN of December to 1 st FN of January	KBSH 44 NDSH 1012 and Pvy.	Strip irrigation at critical stages

						Hybrids	
2		Paddy- Black gram	Black gram	Greengram	Rice fallows: II fortnight of November to 1st fortnight of December	LGG-460 WGG- 42 IPM 2-14	Optimum seed rate 12-14kg/acre and seed treatment with imidacloprid @ 5 ml /kg Foliar spray of urea 2% or 1%,KNO ₃
3		Paddy – Maize/ Ragi	Maize	Ragi	2 nd week of Dec to 4 th week of December	Chaitanya, Champavat hi, Godavari, Bharathi	Sprinkler or strip irrigation at critical stages. Foliar spray of urea 2% or KNO ₃ 1%, 2-3 times at regular intervals,
4				Sorghum	2 nd week of Dec to 4 th week of December	CSH 14, NTJ 5 NTJ 15 (Fodder)	Optimum seed rate (4-5kg/acre)
5		Paddy – Sesame	Sesame	No change	January 2 nd fort night to February 1 st fortnight	YLM 66, YLM 11, 17	Strip or sprinkler irrigation may be provided Foliar spray of urea 2 % or KNO ₃ 1%, 2-3 times at regular intervals
6	Sandy loams	Maize – Maize	Maize	Greengram	1 st fortnight of November to 1 st fortnight of December	LGG-460 WGG- 42 IPM 2-14	Optimum seed rate 12-14 Kg/Acre and seed treatment with imidacloprid @ 5 ml/kg Foliar spray of urea 2% or KNO ₃ 1%, 2-3 times at regular intervals, Sucking pest management to be followed. Acephate @ 1.5g/l or

							Monocrotophos @ 1.6ml/l or Imidacloprid @ 0.4ml/l
--	--	--	--	--	--	--	--

5. Contingency measures for Horticulture Crops (Existing/New plantations)

S. No.	Crop Name	Specific management practices to be taken up following excess/deficient/scanty rainfall	Time of intervention	Remarks

6. Contingency measures for Horticulture Crops (vegetables)

S. No.	Crop Name	Specific management practices to be taken up following excess/deficient/scanty rainfall	Time of intervention	Remarks

7. Temperature related stresses for field and horticulture crops:

Excess temperatures/ Less than normal temperatures

S.No	Crop name	Stage of crop growth	Threshold temperature*	Suggested management practices
1	Paddy	Nursery stage	<20°C	Removal of water in the morning and irrigate the field during night time. Spraying of Zinc Sulphate @ 2% Application of urea 1.5kg/10 cents of nursery
	Paddy	Flowering stage	>40°C	Shortening of irrigation intervals
2	Maize	Tasseling/Silking stage	>40°C	Shortening of irrigation intervals

3	Pulses	Vegetative to flowering stage	<20°C Coupled with heavy fog	Spraying with 1% 19:19:19 or 1% KNO ₃ at 30-35 DAS and 50-55 DAS Initiate prophylactic measures against powdery mildew; Spraying with Propiconazole @ 1ml/l
4	Pulses	Vegetative to flowering stage	>40°C	Sucking pest management to be followed Spraying with Acephate @ 1.5g/l or Monocrotophos @ 1.6ml/l

* Temperature increase or decrease over normal and for number of days. For example, increase of 3 degrees over normal for a period of 5 days

- Management practices to be followed for different crops during the crop growing season.
- To include number of irrigations, reducing the evaporation losses, planting density, etc.
- Management practices for heat waves in northern region particularly for wheat crop
- Management practices for cold waves, hail storms

- **Management practices for unseasonal rains**

Condition	Suggested contingency measure			
Continuous high rainfall in a short span leading to water logging	Vegetative stage	Flowering stage	Crop maturity stage	Post harvest

Paddy	• Drain out excess water • In case of loss of plant population Survived hills are to be split into individual tillers and use for gap filling. • Apply a booster dose of 20-25kg of urea and 15kg of MOP per acre hasten the establishment and promote more tillering • Pests like Leaf folder and swarming caterpillar may emerge so monitor the pest and control measures like spraying of chlorpyrifos 2.5 ml/l or cartap hydrochloride 2gm/l may be taken up.	• Drain out excess water, Apply a booster dose of 20-25kg of urea and 15kg of MOP per acre • Monitor incidence of BPH and initiate Control measures for BPH • Bufrozin 1.6ml/l or Acephate 1.5 gm/l • Spraying should be done in evening times only.	• Drain out excess water. • Control measures for BPH • Spraying of Bufrozin 1.6ml/l or Acephate 1.5 gm/l • In case of lodging stacking of paddy hills (3-4hills) may be done.	• Spraying of 5% salt solution to prevent germination and discolouration of grain. • Shifting of harvested sheaves to the field bunds or elevated places.
Groundnut	• Drain out the water as early as possible • Inter cultivation as soon as possible for quick evaporation of excess moisture. • Spraying with 1% Multi K or 19:19:19 to correct nutrient deficiencies and enhance growth • Spraying with carbendiazm 1gm /+ Mancozeb 3gm/l as prophylactic measure against fungal diseases	• Drain out the water as early as possible • Pests like Spodoptera may attack the crop. control measures like Thiodicarb 1gm/l may be sprayed • Spraying with carbendiazm 1gm /+ Mancozeb 3gm/l as prophylactic measure against fungal diseases	• Drain out the water as early as possible. • Spraying with carbendiazm 1gm /+ Mancozeb 3gm/l as prophylactic measure against fungal diseases. • Harvesting may be planned in case of advanced maturity stage.	• Drain out the water as early as possible. • Pluck the pods from plants and dry • Harvested crop may kept in heaps upside down to facilitate the pods to dry early.
Maize	• Drain out the water as early as possible • Inter cultivation as soon as possible for quick evaporation of excess moisture. • Apply a booster dose of 20-25kg of urea and 15kg of MOP per acre • Spraying with 1% Multi K or 19:19:19 to correct nutrient deficiencies and enhance growth	• Drain out the water as early as possible • Inter cultivation as soon as possible for quick evaporation of excess moisture. • Apply a booster dose of 20-25kg of urea and 15kg of MOP per acre • Spraying with 1% Multi K or 19:19:19 to correct nutrient deficiencies and enhance growth	• Drain out the water as early as possible. • Harvesting may be planned in case of advanced maturity stage for greencob purpose	• Drain out the water as early as possible. • Harvested cobs may be dried

Sugarcane	• Drain out the water as early as possible • Inter cultivation as soon as possible for quick evaporation of excess moisture. • Apply a booster dose of 20-25kg of urea and 15kg of MOP per acre	• Drain out the water as early as possible • Apply a booster dose of 20-25kg of urea and 15kg of MOP per acre • Propping may be done to the lodged canes	• Drain out the water as early as possible • Propping may be done to the lodged canes • Plan for early harvesting and send to the factory or for jaggery making	• Drain out the water as early as possible • Plan for send to the factory at the earliest or for jaggery making
Blackgram and Greengram	• Drain out the water as early as possible • Inter cultivation as soon as possible for quick evaporation of excess moisture. • Spraying with 1% Multi K or 19:19:19 to correct nutrient deficiencies and enhance growth • Spraying with carbendiazm 1gm /+ Mancozeb 3gm/l as prophylactic measure against fungal diseases	• Drain out the water as early as possible • Spraying with carbendiazm 1gm /+ Mancozeb 3gm/l as prophylactic measure against fungal diseases	• Drain out the water as early as possible. • Spraying with carbendiazm 1gm /+ Mancozeb 3gm/l as prophylactic measure against fungal diseases.	• Drain out the water as early as possible. • Pluck the pods from plants and dry • Harvested crop may kept in heaps upside down to facilitate the pods to dry early.

8. Management practices for livestock (to cover shelter management during cold or heat waves, production/regulation of fodder in rabi season in deficient monsoon years/ excess monsoon rainfall years etc),

For Fodder crops grown with residual moisture i.e., under rainfed condition

(a) Excess (rainfall during September/October months) residual moisture

S. No.	Soil type	Cropping system	Fodder name	Variety	Management practices

(b) Normal rainfall (rainfall during September/October months) residual moisture

S. No.	Soil type	Cropping system	Crop name	Variety	Management practices

(b) Less than optimum moisture i.e., 25% less than normal, which can happen due to insufficient rainfall during September/October months. Deficit of 20-40% rainfall

S. No.	Soil type	Cropping system	Fodder name	Variety	Management practices

(c) Severe limitation in moisture. Deficit of rainfall during September/October months by more than 40%.

S. No.	Soil type	Cropping system	Fodder name	Variety	Management practices

For fodder crops (mostly perennial fodder varieties as sole fodder crop) grown with groundwater

S. No.	Soil type	Fodder name	Variety	Management practices

Livestock management during severe cold waves/heat waves

Nutritional management	Shelter management	Health management	Miscellaneous, if any