State: GUJARAT

Agriculture Contingency Plan for District: ARVALLI

1.0 District Agriculture profile					
1.1	**Agro-Climatic/Ecological Zone**				
	Agro Ecological Sub Region (ICAR)	Northern Plain (And Central Highlands) Including Aravallis, Hot Semi- Arid Eco- Region (4.2)			
	Agro-Climatic Zone (Planning Commission)	Gujarat Plain and Hill Region (XIII)			
	Agro Climatic Zone (NARP)	North Gujarat Zone (GJ-4)			
	List all the districts falling under the NARP Zone* (*>50% area falling in the zone)	Sabarkantha, Mehsana, Kheda, Gandhinagar.			
	Geographic coordinates of district headquarters				
	Geographic coordinates of district headquarters	**Latitude**	**Longitude**	**Altitude**	
		24.0283^{o} N	73.0414^{o} E		
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS	Agricultural Research Station, S.D. Agricultural University, Talod. Maize Research Station, S.D. Agricultural University, Bhiloda			
	Mention the KVK located in the district with address	Krishi Vignan Kendra, Sabarkantha-383255, Gujarat.			

1.2	Rainfall	Normal RF (mm)	Normal Rainy days (number)	Normal Onset (specify week and month)	Normal Cessation (specify week and month)
	SW monsoon (June-Sep):	-	-	-	-
	NE Monsoon(Oct-Dec):	-	-	-	-
	Winter (Jan- March)	-	-	-	-
	Summer (Apr-May)	-	-	-	-
	Annual	575	25.3	-	-

1.3	**Land use pattern of the district** (latest statistics)	Geographical area	Cultivable area	Forest area	Land under non-agricultural use	Permanent pastures	Cultivable wasteland	Land under Misc. tree crops and groves	Barren and uncultivable land	Current fallows	Other fallows
	Area ('000 ha)	323.2	237.44	-	-	16.3	7.951 -	11.73	-	-	-

1. 4	Major Soils (common names like red sandy loam deep soils (etc.,)*	Area ('000 ha)	Percent (%) of total
	1. Sandy loam, Clay loam & clay	-	
	2. Sandy clay loam, shallow in depth	-	
	3. Sandy loam & clay loam	-	
	4.		
	5.		
	Others (specify):		

* mention colour, depth and texture (heavy, light, sandy, loamy, clayey etc) and give vernacular name, if any, in brackets (data source: Soil Resource Maps of NBSS & LUP)

1.5	**Agricultural land use**	Area ('000 ha)	Cropping intensity %
	Net sown area	203.57	120%
	Area sown more than once	33.87	
	Gross cropped area	237.44	

1.6	**Irrigation**	Area ('000 ha)		
	Net irrigated area	-		
	Gross irrigated area	226.79		
	Rainfed area	103.47		
	Sources of Irrigation	Number	Area ('000 ha)	Percentage of total irrigated area
	Canals		101.03	
	Tanks			
	Open wells			
	Bore wells			
	Lift irrigation schemes			
	Micro-irrigation			
	Other sources (please specify)			
	Total Irrigated Area			
	Pump sets			
	No. of Tractors			
	Groundwater availability and use* (Data source: State/Central Ground water Department /Board)	No. of blocks/ Tehsils	(%) area	Quality of water (specify the problem such as high levels of arsenic, fluoride, saline etc)
	Over exploited			
	Critical			
	Semi- critical			
	Safe			
	Wastewater availability and use			
	Ground water quality			

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

1.7 Area under major field crops & horticulture (as per latest figures) (Specify year 2011-2012)

1.7	S. No.	Major field crops cultivated	Area ('000 ha)							
			Kharif			*Rabi*				
			Irrigated	**Rainfed**	**Total**	**Irrigated**	**Rainfed**	**Total**	**Summer**	**Grand total**
	1	Wheat	-	-	-	82.63	-	82.63	-	82.63
	2	Cotton	54.75	-	54.75	-	-	-	-	54.75
	3	Maize	-	39.4	39.4	1.58	-	1.58	-	40.98
	4	Groundnut	-	33.9	33.9	-	-	-	3.025	36.93
	5	Castor	22.66	-	22.66	-	-	-	-	22.66
	6	Pigeonpea	2.25	1.565	3.82	-	-	-	-	7.66
	7	Chickpea	-	-	-	2.43	-	2.43	-	2.43
	8	Soybean	-	2.37	2.37	-	-	-	-	2.37
	9	Blackgram	-	1.64	1.64	-	-	-	-	1.64
	Others (specify)		-	-	-	-	-			

	S. No.	**Horticulture crops - Fruits**	**Area ('000 ha)**
			Total

	1	Fruits	4.482		
	2	Spices	1.669		
	3	Flowers	0.079		
	4				
	Others (specify)				
		Horticulture crops - Vegetables	**Total**		
	1	Vegetables	12.475		
	2				
	Others (specify)				
		Medicinal and Aromatic crops	**Total**	**Irrigated**	**Rainfed**
	1	-	**-**	**-**	**-**
	Others (specify)				
		Plantation crops	**Total**	**Irrigated**	**Rainfed**
	1	**-**	**-**	**-**	**-**
	Others (Specify)	Eg., industrial pulpwood crops etc.			

		Fodder crops	Total	Irrigated	Rainfed
	1	-	-	-	-
	Others (Specify)				
		Total fodder crop area			
		Grazing land			
		Sericulture etc			
		Others (specify)			

1.8	Livestock	Male (‘000)	Female (‘000)	Total (‘000)
	Non descriptive Cattle (local low yielding)	-	128.137	128.137
	Improved cattle	-	119.137	119.137
	Crossbred cattle	-	-	-
	Non descriptive Buffaloes (local low yielding)	-	329.529	329.529
	Descript Buffaloes	-	159.247	159.247
	Goat	-	170.366	170.366
	Sheep	-	18.346	18.346
	Others (Camel, Pig, Yak etc.)	-	(Ducks) 8.161	8.161
	Commercial dairy farms (Number)			
1.9	**Poultry**	**No. of farms**	**Total No. of birds (‘000)**	
	Commercial	-	-	
	Backyard	-	-	
1.10	**Fisheries** (Data source: Chief Planning Officer)			
	A. Capture			

	i) Marine (Data Source: Fisheries Department)	**No. of fishermen**	**Boats**		**Nets**		**Storage facilities (Ice plants etc.)**
			Mechanized	Non-mechanized	Mechanized (Trawl nets, Gill nets)	Non-mechanized (Shore Seines, Stake & trap nets)	
		-	-	-	-	-	-
	ii) Inland (Data Source: Fisheries Department)	**No. Farmer owned ponds**		**No. of Reservoirs**		**No. of village tanks**	
		-		-		-	
-	**B. Culture**						
	-			**Water Spread Area (ha)**		**Yield (t/ha)**	**Production ('000 tons)**
	i) **Brackish water** (Data Source: MPEDA/ Fisheries Department)			-		-	-
	ii) **Fresh water** (Data Source: Fisheries Department)			-		-	-
	Others			-		-	-

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

1.11	Name of crop	**Kharif**		**Rabi**		**Summer**		**Total**		**Crop residue as fodder** ('000 tons)
		Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	
Major Field crops (Crops to be identified based on total acreage)										
Crop 1	Wheat	-	-	227.398	2752	-	-	227.398	2752	-
Crop 2	Maize	0.060	2	-	-	-	-	0.060	2	-
Crop 3	Groundnut	0.057	2	-	-	-	-	0.057	2	-
Crop 4	Castor	39.836	1758	-	-	-	-	39.836	1758	-

Crop 5	Cotton	29.620	541	-	-	-	-	29.620	541	-
Crop 6	Pearl millet	-	-	-	-	8.435	2556	8.435	2556	-
Crop 7	Groundnut	-	-	-	-	5.372	1776	5.372	1776	-
Crop 8	Maize	-	-	4.186	2658	-	-	4.186	2658	-
Crop 9	Rapeseed & Mustard	-	-	3.720	1583	-	-	3.720	1583	-
Crop 10	Pigeon pea	2.002	525	-	-	-	-	2.002	525	-
Others	-	-	-	-	-	-	-	-	-	-
Major Horticultural crops (Crops to be identified based on total acreage)										
Crop 1										
Crop 2										
Crop 3										
Crop 4										
Crop 5										
Others										

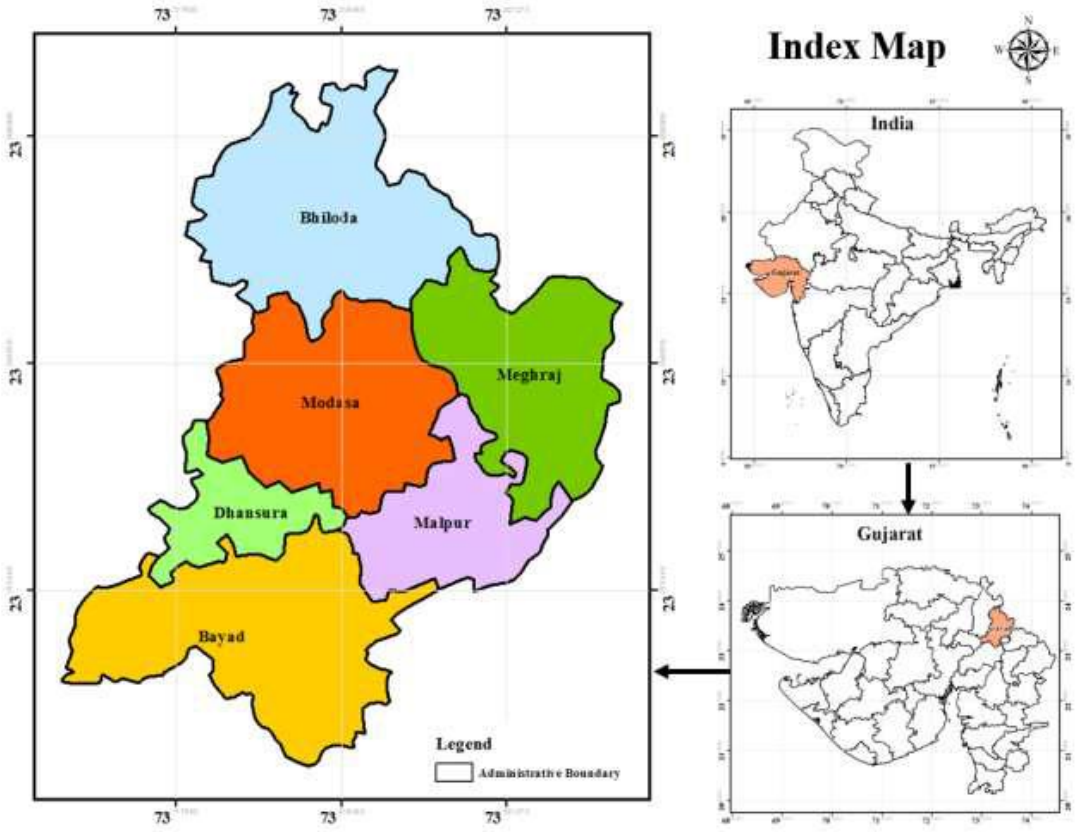
1.12	**Sowing window for 5 major field crops** (start and end of normal sowing period)	Crop 1: _____	2: _____	3: _____	4: _____	5: _____
	Kharif- Rainfed					
	Kharif-Irrigated					
	Rabi- Rainfed					
	Rabi-Irrigated					

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

1.14	**Include Digital maps of the district for**	Location map of district within State as Annexure I	Enclosed: Yes
		Mean annual rainfall as Annexure 2	Enclosed: No
		Soil map as Annexure 3	Enclosed: Yes

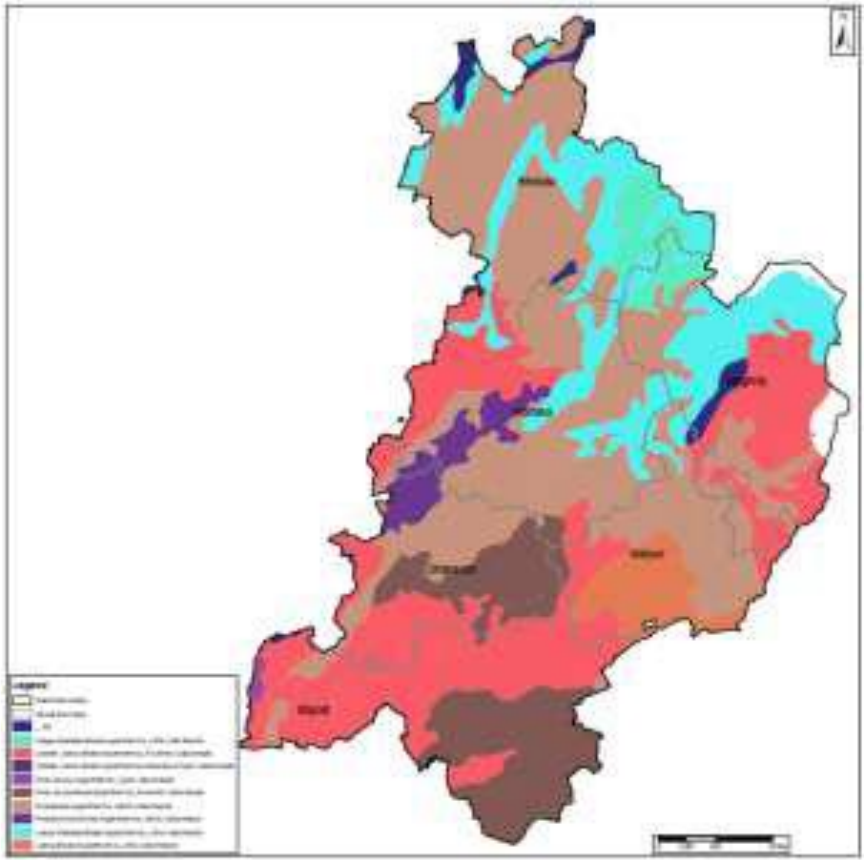
Annexure-I

LOCATION MAP OF ARAVALLI DISTRICT (GUJARAT)



Annexure-III

Soil map of Aravalli 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 including variety**	**Agronomic measures**	**Remarks on Implementation**
Delay by 2 weeks. i.e. July 1st week	High rainfall Sandy loam Soil (Himmatnagar, Prantij, Talod, Dhansura)	Cropping System: Cotton-Wheat, Groundnut-Wheat and Maize Wheat Cotton (Bt)	No change	No change	
		Groundnut -Spreading type GAUG-10, GG-11, 12 & 13. -Bunch type (Errect) J-11, GG-2, GL-24, GG4, 5 & 6, GAUG-1 -Semi spreading GG-20	No change	No change	• Breeder seed source SAU • Certified seed source NSC,GSSC, GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-)
		Castor GCH-2,GCH-3,GCH-5,GCH-6 (root rot resistance), GCH-7 (wilt resistance), GAUCH-1	No change	• Ridge & furrow method of sowing (90 cm) Or • Compartmental bunding (3.6 X 6.0 m)	• Ridge & furrow maker can be provided under RKVY or other Govt. Agency. • Breeder seed source SAU • Certified seed source NSC,GSSC, GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-)
		Maize -Private Hybrids-Pusa early hybrids-1 & 2 -Improved Var. Farm sameri, Guj.Maize-1,2,3,4 & 6, Narmada moti	As such	As such	• Breeder seed source SAU • Certified seed source NSC,GSSC, GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-)

		Pigeonpea T.15-15, Pusa Ageti, BDN-2, ICPL-87, GT-1, GT-100, GT-101, Banas, GTH-1	No change	No change	do
		Black gram Zandewal, T-9, TPU-4, Pusa-1, Guj.Urad-1	No change	No change	do
		<u>Maize local</u>	African tall	As Such	do
	Medium rainfall, Medium black soil (Khedbrahma, Meghraj)	Cropping system: Cotton-Wheat, Maize-Wheat & Paddy-Wheat <u>Cotton (Bt)</u>	No change	No change	-
		Castor GCH-2,GCH-3,GCH-5,GCH-6 (root rot resistance), GCH-7 (wilt resistance), GAUCH-1	No change	• Ridge & furrow method of sowing (90 cm) Or • Compartmental bunding (3.6 X 6.0 m)	• Ridge & furrow maker can be provided under RKVY or other Govt. Agency. • Breeder seed source SAU • Certified seed source NSC,GSSC, GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-)
		<u>Maize</u> -Private Hybrids-Pusa early hybrids-1 & 2 -Improved Var. Farm sameri, Guj.Maize-1,2,3,4 & 6, Narmada moti	As such	As such	• Breeder seed source SAU • Certified seed source NSC,GSSC, GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-)
		Groundnut -<u>Spreading type</u> GAUG-10, GG-11, 12 & 13. -<u>Bunch type (Errect)</u> J-11, GG-2, GL-24, GG4, 5 & 6, GAUG-1 -<u>Semi spreading</u> GG-20	No change	No change	do

		Black gram Zandewal, T-9, TPU-4, Pusa-1, Guj.Urad-1	No change	No change	do
		Pigeonpea T.15-15, Pusa Ageti, BDN-2, ICPL-87, GT-1, GT-100, GT-101, Banas, GTH-1	No change	No change	do
		<u>Maize local</u>:	African tall	As Such	do
	High rainfall, Medium black Soil. (Idar, Bhiloda, Modasa, Malpur,Bayad, Vadali, Vijaynagar)	Cropping system: Cotton-Wheat, Maize-Wheat & Groundnut-Wheat <u>Bajra</u> GHB-558,538,577,719,732	• Grow short duration early maturing varieties of Bajra viz.GHB-538, GHB-577	• 20 Per Cent higher seed rate • Seed priming with thiourea (0.05%) for four hours • Sowing by adopting compartmental bunding (3.0 X 4.5 m)	• Breeder seed source SAU • Certified seed source NSC,GSSC, GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-)
		<u>Maize</u> -Private Hybrids-Pusa early hybrids-1 & 2 -Improved Var. Farm sameri, Guj.Maize-1,2,3,4 & 6, Narmada moti	As such	As such	do
		Castor GCH-2,GCH-3,GCH-5,GCH-6 (root rot resistance), GCH-7 (wilt resistance), GAUCH-1	No change	• Ridge & furrow method of sowing (90 cm) Or • Compartmental bunding (3.6 X 6.0 m)	• Ridge & furrow maker can be provided under RKVY or other Govt. Agency. • Breeder seed source SAU • Certified seed source NSC,GSSC, GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-)

		Groundnut -Spreading type GAUG-10, GG-11, 12 & 13. -Bunch type (Errect) J-11, GG-2, GL-24, GG4, 5 & 6, GAUG-1 -Semi spreading GG-20	No change	No change	• Breeder seed source SAU • Certified seed source NSC,GSSC, GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-)
		Cotton (Bt)	No change	No change	
		Pigeonpea T.15-15, Pusa Ageti, BDN-2, ICPL-87, GT-1, GT-100, GT-101, Banas, GTH-1	No change	No change	• Breeder seed source SAU • Certified seed source NSC,GSSC, GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-)
		Maize local:	African tall	As Such	do

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 (Specify month) **July 3rd Week**	High rainfall Sandy loam Soil (Himmatnagar, Prantij, Talod, Dhansura)	Cropping System: Cotton-Wheat, Groundnut-Wheat and Maize Wheat Cotton (Bt)	Early maturing Bt-Cotton + Green gram or Black gram (1:1 Row ratio)	Conservation furrow at every third row	Furrow maker can be provided under RKVY or other Govt. Agency.
		Groundnut -Spreading type GAUG-10, GG-11, 12 & 13. -Bunch type (Errect) J-11, GG-2, GL-24, GG4, 5 & 6, GAUG-1 -Semi spreading	Cowpea -Guj.Cowpea-1,2,4 &5 Only as a vegetable purpose, green pod marketing Clusterbean- HG-75,Guj Guar-1 and 2 only Mothbean- -Gujarat Mothbean-1, GMO-2 Green gram-	• Sowing at 60 cm spacing • Fertilizer reduction by 30 Per Cent	• Breeder seed source SAU • Certified seed source NSC,GSSC,GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-)

		GG-20	Gujarat Moong-4 Black gram- Gujarat Urad-1		
		Castor GCH-2,GCH-3,GCH-5,GCH-6 (root rot resistance), GCH-7 (wilt resistance), GAUCH-1	No Change	• Ridge & furrow method of sowing (90 cm) Or • Compartmental bunding (3.6 X 6.0 m)	• Breeder seed source SAU • Certified seed source NSC,GSSC,GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-) • Ridge & furrow maker can be provided under RKVY or other Govt. Agency.
		Maize -Private Hybrids-Pusa early hybrids-1 & 2 -Improved Var. Farm sameri, Guj.Maize-1,2,3,4 & 6, Narmada moti	• Gujarat Maize 4 or 6 + Tur GT-101 (2:1 row ratio) • Gujarat Maize 4 or 6 + Urad Guj.-1 (1:1 row ratio)	• Sow the crop at 75cm distance • Reduce the fertilizer application by 30 Per Cent	--
		Pigeonpea T.15-15, Pusa Ageti, BDN-2, ICPL-87, GT-1, GT-100, GT-101, Banas, GTH-1	Dual purpose Sorghum Gujarat Jowar-39 and Malvan	---	• Breeder seed source SAU • Certified seed source NSC,GSSC,GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-)
		Black gram Zandewal, T-9, TPU-4, Pusa-1, Guj.Urad-1	Gujarat Urad-1	do	do
		Maize local:	African tall	do	• Bund maker can be provided under RKVY
	Medium rainfall, Medium black soil	Cropping system: Cotton-Wheat, Maize-Wheat & Paddy-Wheat Cotton (Bt)	Early maturing Bt-Cotton +	• Conservation furrow at	• Furrow maker can be

	(Khedbrahma, Meghraj)		Green gram or Black gram (1:1 Row ratio)	every third row	provided under RKVY or other Govt. Agency.
		Castor GCH-2,GCH-3,GCH-5,GCH-6 (root rot resistance), GCH-7 (wilt resistance), GAUCH-1	No Change	• Ridge & furrow method of sowing (90 cm) Or • Compartmental bunding (3.6 X 6.0 m)	• Breeder seed source SAU • Certified seed source NSC,GSSC,GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-) • Ridge & furrow maker can be provided under RKVY or other Govt. Agency.
		<u>Maize</u> -Private Hybrids-Pusa early hybrids-1 & 2 -Improved Var. Farm sameri, Guj.Maize-1,2,3,4 & 6, Narmada moti	• Gujarat Maize 4 or 6 + Tur GT-101 (2:1 row ratio) • Gujarat Maize 4 or 6 + Urad Guj.-1 (1:1 row ratio)	• Sow the crop at 75cm distance • Reduce the fertilizer application by 30 Per Cent	---
		Groundnut -<u>Spreading type</u> GAUG-10, GG-11, 12 & 13. -<u>Bunch type (Errect)</u> J-11, GG-2, GL-24, GG4, 5 & 6, GAUG-1 -<u>Semi spreading</u> GG-20	<u>Cowpea -</u>Guj.Cowpea-1,2,4 &5 Only as a vegetable purpose, green pod marketing <u>Clusterbean-</u> HG-75,Guj Guar-1 and 2 only <u>Mothbean-</u> -Gujarat Mothbean-1, GMO-2 <u>Green gram-</u> Gujarat Moong-4 <u>Black gram-</u> Gujarat Urad-1	• Sowing at 60 cm spacing • Fertilizer reduction by 30 Per Cent	• Breeder seed source SAU • Certified seed source NSC,GSSC,GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-)
		Black gram Zandewal, T-9, TPU-4, Pusa-1, Guj.Urad-1	Gujarat Urad-1	• Sowing at 60 cm spacing • Fertilizer reduction by 30 Per Cent	do

		Pigeonpea T.15-15, Pusa Ageti, BDN-2, ICPL-87, GT-1, GT-100, GT-101, Banas, GTH-1	Dual purpose Sorghum Gujarat Jowar-39 and Malvan	---	• Breeder seed source SAU • Certified seed source NSC,GSSC,GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-)
		Maize local:	African tall	do	• Bund maker can be provided under RKVY
	High rainfall, Medium black Soil. (Idar, Bhiloda, Modasa, Malpur,Bayad, Vadali, Vijaynagar)	Cropping system: Cotton-Wheat, Maize-Wheat & Groundnut-Wheat Bajra GHB-558,538,577,719,732	• Short duration early maturing Var. GHB-538& 577 • Karingdo as a mixed crop along with pearl millet third row • Reduce 25% acreage of pear millet by Guar and Mothbean	• Sowing at 60 cm-seed priming with thiurea (0.05%) for four hours • Sowing by adopting compartmental bunding (3.0 X 4.5 m)	• Breeder seed source SAU • Certified seed source NSC,GSSC,GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-)
		Maize -Private Hybrids-Pusa early hybrids-1 & 2 -Improved Var. Farm sameri, Guj.Maize-1,2,3,4 & 6, Narmada moti	Maize -Private Hybrids-Pusa early hybrids-1 & 2 -Improved Var. Farm sameri, Guj.Maize-1,2,3,4 & 6, Narmada moti	• Gujarat Maize 4 or 6 + Tur GT-101 (2:1 row ratio) • Gujarat Maize 4 or 6 + Urad Guj.-1 (1:1 row ratio)	• Sow the crop at 75cm distance • Reduce the fertilizer application by 30 Per Cent
		Castor GCH-2,GCH-3,GCH-5,GCH-6 (root rot resistance), GCH-7 (wilt resistance), GAUCH-1	No Change	• Ridge & furrow method of sowing (90 cm) Or • Compartmental bunding (3.6 X 6.0 m)	• Breeder seed source SAU • Certified seed source NSC,GSSC, GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-) • Ridge & furrow maker can be provided under RKVY or other Govt. Agency.
		Groundnut -Spreading type GAUG-10, GG-11, 12 &	Cowpea -Guj.Cowpea-1,2,4 &5 Only as a vegetable purpose, green pod marketing	• Sowing at 60 cm spacing • Fertilizer reduction by	• Breeder seed source SAU • Certified seed source NSC,GSSC,

		13. -<u>Bunch type (Errect)</u> J-11, GG-2, GL-24, GG4, 5 & 6, GAUG-1 -<u>Semi spreading</u> GG-20	<u>Clusterbean-</u> HG-75,Guj Guar-1 and 2 only <u>Mothbean-</u> -Gujarat Mothbean-1, GMO-2 <u>Green gram-</u> Gujarat Moong-4 <u>Black gram-</u> Gujarat Urad-1	30 Per Cent	GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-)
		<u>Cotton (Bt)</u>	• Early maturing Bt-Cotton + Green gram or Black gram (1:1 Row ratio)	• Conservation furrow at every third row	• Furrow maker can be provided under RKVY or other Govt. Agency.
		Pigeonpea T.15-15, Pusa Ageti, BDN-2, ICPL-87, GT-1, GT-100, GT-101, Banas, GTH-1	Dual purpose Sorghum Gujarat Jowar-39 and Malvan	---	• Breeder seed source SAU • Certified seed source NSC,GSSC, GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-)
		<u>Maize local</u>:	African tall	do	Bund maker can be provided under RKVY

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 August 1st week	High rainfall Sandy loam Soil (Himmatnagar, Prantij, Talod, Dhansura)	Cropping System: Cotton-Wheat, Groundnut-Wheat and Maize Wheat <u>Cotton (Bt)</u>	• Castor (GCH-4,5 or 7) • Castor (GCH-4,5 or 7) + Clusterbean (Guj Guar 1 or 2) • One row of Cowpea or Clusterbean between regular two row of castor without giving	• Seed hardening (soaking the seed 8 hours in water followed by shadow drying) • Sow the castor crop at 120 cm spacing • Compartmental bunding (3.6 X 6.0 m)	• Breeder seed source SAU • Certified seed source NSC,GSSC,GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-) • Ridge & furrow maker can be provided under RKVY

			any fertilizer		or other Govt. Agency.
		Groundnut -Spreading type GAUG-10, GG-11, 12 & 13. -Bunch type (Errect) J-11, GG-2, GL-24, GG4, 5 & 6, GAUG-1 -Semi spreading GG-20	Clusterbean Hg-75, Gujarat Guar 1 or 2 Fodder Jowar GJ-39, Malvan	• 25% higher seed rate with 60 cm spacing • Reduce the fertilizer by 40 Per Cent • Seed hardening (soaking the seed 3 to 4 hours in water followed by shadow drying) • In fodder Sorghum, apply 20 kg S/ha through Gypsum	do
		Castor GCH-2,GCH-3,GCH-5,GCH-6 (root rot resistance), GCH-7 (wilt resistance), GAUCH-1	Castor (GCH-4,5 or 7) + Mothbean (GMO-2) (1:2 row ratio) (two line of Mothbean in regular spacing of Castor)	• Seed hardening (soaking the seed 4 to 6 hours in water followed by shadow drying) • Compartmental bunding(3.6X5.0m) • Reduction in fertilizer application by 50 Per Cent • Sowing distance 120 cm for castor • No fertilizer application for inter crop	• Breeder seed source SAU • Certified seed source NSC,GSSC,GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-) • Bund maker provide under RKVY
		Maize -Private Hybrids-Pusa early hybrids-1 & 2 -Improved Var. Farm sameri, Guj.Maize-1,2,3,4 & 6, Narmada moti	Fodder Jowar GJ-39, Malvan	• Wider spacing at 60 cm with 25 Per Cent higher seed rate • Reduce the fertilizer application by 40 Per Cent • In fodder Sorghum, apply 20 kg S/ha through Gypsum	• Breeder seed source SAU • Certified seed source NSC,GSSC,GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-) • Gypsum provided under subsidies rate by Govt. Agency

		Pigeonpea T.15-15, Pusa Ageti, BDN-2, ICPL-87, GT-1, GT-100, GT-101, Banas, GTH-1	Dual purpose Sorghum Gujarat Jowar-39 and Malvan	---	• Breeder seed source SAU • Certified seed source NSC,GSSC,GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-)
		Black gram Zandewal, T-9, TPU-4, Pusa-1, Guj.Urad-1	Fodder sorghum-GJ-39, Malvan	do	do
		Maize local:	African tall	do	• Bund maker can be provided under RKVY
	Medium rainfall, Medium black soil (Khedbrahma, Meghraj)	Cropping system: Cotton-Wheat, Maize-Wheat & Paddy-Wheat Cotton (Bt)	• Castor (GCH-4,5 or 7) • Castor (GCH-4,5 or 7) + Clusterbean (Guj Guar 1 or 2) • One row of Cowpea or Clusterbean between regular two row of castor without giving any fertilizer	• Seed hardening (soaking the seed 8 hours in water followed by shadow drying) • Sow the castor crop at 120 cm spacing • Compartmental bunding (3.6 X 6.0m)	• Breeder seed source SAU • Certified seed source NSC,GSSC,GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-) • Ridge & furrow maker can be provided under RKVY or other Govt. Agency.

		Castor GCH-2,GCH-3,GCH-5,GCH-6 (root rot resistance), GCH-7 (wilt resistance), GAUCH-1	Castor (GCH-4,5 or 7) + Mothbean (GMO-2) (1:2 row ratio) (two line of Mothbean in regular spacing of Castor)	• Seed hardening (soaking the seed 4 to 6 hours in water followed by shadow drying) • Compartmental bunding (3.6 X 5.0 m) • Reduction in fertilizer application by 50 Per Cent • Sowing distance 120 cm for castor • No fertilizer application for inter crop	• Breeder seed source SAU • Certified seed source NSC,GSSC,GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-) • Bund maker provide under RKVY
		Maize -Private Hybrids-Pusa early hybrids-1 & 2 -Improved Var. Farm sameri, Guj.Maize-1,2,3,4 & 6, Narmada moti	Fodder Jowar GJ-39, Malvan	• Wider spacing at 60 cm with 25 Per Cent higher seed rate • Reduce the fertilizer application by 40 Per Cent • In fodder Sorghum, apply 20 kg S/ha through Gypsum	do
		Groundnut -Spreading type GAUG-10, GG-11, 12 & 13. -Bunch type (Errect) J-11, GG-2, GL-24, GG4, 5 & 6, GAUG-1 -Semi spreading GG-20	Clusterbean Hg-75, Gujarat Guar 1 or 2 Fodder Jowar GJ-39, Malvan	• 25% higher seed rate with 60 cm spacing • Reduce the fertilizer by 40 Per Cent • Seed hardening (soaking the seed 3 to 4 hours in water followed by shadow drying) • In fodder Sorghum, apply 20 kg S/ha through Gypsum	do
		Black gram Zandewal, T-9, TPU-4, Pusa-1, Guj.Urad-1	Fodder sorghum-GJ-39, Malvan	do	do

		Pigeonpea T.15-15, Pusa Ageti, BDN-2, ICPL-87, GT-1, GT-100, GT-101, Banas, GTH-1	Dual purpose Sorghum Gujarat Jowar-39 and Malvan	---	do
		Maize local:	African tall	do	Bund maker can be provided under RKVY
	High rainfall, Medium black Soil. (Idar, Bhiloda, Modasa, Malpur,Bayad, Vadali, Vijaynagar)	Cropping system: Cotton-Wheat, Maize-Wheat & Groundnut-Wheat	• Clusterbean HG-75, Gujarat Guar 1 or 2	• 25% higher seed rate with 60 cm spacing • Reduce the fertilizer by 40 Per Cent • Seed hardening (soaking the seed 3 to 4 hours in water followed by shadow drying)	• Breeder seed source SAU • Certified seed source NSC,GSSC,GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-) • Ridge & furrow maker can be provided under RKVY or other Govt. Agency.
		Maize -Private Hybrids-Pusa early hybrids-1 & 2 -Improved Var. Farm sameri, Guj.Maize-1,2,3,4 & 6, Narmada moti	Fodder Jowar GJ-39, Malvan	• Wider spacing at 60 cm with 25 Per Cent higher seed rate • Reduce the fertilizer application by 40 Per Cent • In fodder Sorghum, apply 20 kg S/ha through Gypsum	• Breeder seed source SAU • Certified seed source NSC,GSSC,GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-) • Ridge & furrow maker can be provided under RKVY or other Govt. Agency.+ • Gypsum provided under subsidies rate by Govt. Agency.
		Castor GCH-2,GCH-3,GCH-5,GCH-6 (root rot resistance),	Castor (GCH-4,5 or 7) + Mothbean (GMO-2) (1:2 row ratio) (two line of Mothbean in regular	• Seed hardening (soaking the seed 4 to 6 hours in water followed by shadow drying) • Compartmental bunding (3.6 X 5.0	• Breeder seed source SAU • Certified seed source NSC,GSSC,GUJCOMASOL

		GCH-7 (wilt resistance), GAUCH-1	spacing of Castor)	m) • Reduction in fertilizer application by 50 Per Cent • Sowing distance 120 cm for castor • No fertilizer application for inter crop	• Seed drill under RKVY (costing Rs. 30000/-) • Bund maker provide under RKVY
		Groundnut -<u>Spreading type</u> GAUG-10, GG-11, 12 & 13. -<u>Bunch type (Errect)</u> J-11, GG-2, GL-24, GG4, 5 & 6, GAUG-1 -<u>Semi spreading</u> GG-20	<u>Clusterbean</u> Hg-75, Gujarat Guar 1 or 2 <u>Fodder Jowar</u> GJ-39, Malvan	• 25% higher seed rate with 60 cm spacing • Reduce the fertilizer by 40 Per Cent • Seed hardening (soaking the seed 3 to 4 hours in water followed by shadow drying) • In fodder Sorghum, apply 20 kg S/ha through Gypsum	• Breeder seed source SAU • Certified seed source NSC,GSSC,GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-) • Gypsum provided under subsidies rate by Govt. Agency.
		<u>Cotton (Bt)</u>	• Castor (GCH-4,5 or 7) • Castor (GCH-4,5 or 7) + Clusterbean (Guj Guar 1 or 2) • One row of Cowpea or Clusterbean between regular two row of castor without giving any fertilizer	• Seed hardening (soaking the seed 8 hours in water followed by shadow drying) • Sow the castor crop at 120 cm spacing • Compartmental bunding (3.6 X 6.0 m)	• Breeder seed source SAU • Certified seed source NSC,GSSC,GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-) • Ridge & furrow maker can be provided under RKVY or other Govt. Agency.
		Pigeonpea T.15-15, Pusa Ageti, BDN-2, ICPL-87, GT-1, GT-100, GT-101, Banas, GTH-1	Dual purpose Sorghum Gujarat Jowar-39 and Malvan	---	• Breeder seed source SAU • Certified seed source NSC,GSSC,GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-)
		<u>Maize local:</u>	African tall	do	Bund maker can be provided under RKVY

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 **August 3rd week**	High rainfall Sandy loam Soil (Himmatnagar, Prantij, Talod, Dhansura)	Cropping System: Cotton-Wheat, Groundnut-Wheat and Maize Wheat Cotton (Bt)	Clusterbean Hg-75, Gujarat Guar 1 or 2 Fodder Jowar GJ-39, Malvan	• 25% higher seed rate with 60 cm spacing • Reduce the fertilizer by 40 Per Cent • Seed hardening (soaking the seed 3 to 4 hours in water followed by shadow drying) • In fodder Sorghum, apply 20 kg S/ha through Gypsum	• Breeder seed source SAU • Certified seed source NSC,GSSC,GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-) • Ridge & furrow maker can be provided under RKVY or other Govt. Agency. • Gypsum provided under subsidies rate by Govt. Agency.
		Groundnut -Spreading type GAUG-10, GG-11, 12 & 13. -Bunch type (Errect) J-11, GG-2, GL-24, GG4, 5 & 6, GAUG-1 -Semi spreading GG-20	Sesame Purva (semi rabi var.) Purva-1	As such	• Breeder seed source SAU • Certified seed source NSC,GSSC,GUJCOMASOL
		Castor GCH-2,GCH-3,GCH-5,GCH-6 (root rot resistance), GCH-7 (wilt resistance), GAUCH-1	• Castor (GCH-4,5 or 7) + Cowpea (GC-4 (one line of Cowpea in regular spacing of castor) Or • Castor (GCH-4,5 or 7) + Purva Til (purva-1) (1:1 Row ratio)	• Seed hardening (soaking the seed 4 to 6 hours in water followed by shadow drying) • Reduction in fertilizer application by 50 Per Cent • Sowing distance 120 cm for castor • No fertilizer application for inter crop	• Breeder seed source SAU • Certified seed source NSC,GSSC,GUJCOMASOL • Bund maker provide under RKVY • Seed drill can be provided under RKVY or any other Govt. Agency on subsidies rate

		Maize -Private Hybrids-Pusa early hybrids-1 & 2 -Improved Var. Farm sameri, Guj.Maize-1,2,3,4 & 6, Narmada moti	Fodder Jowar GJ-39, Malvan	• Wider spacing at 60 cm with 25 Per Cent higher seed rate • Reduce the fertilizer application by 40 Per Cent • In fodder Sorghum, apply 20 kg S/ha through Gypsum	• Breeder seed source SAU • Certified seed source NSC,GSSC,GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-) • Gypsum provided under subsidies rate by Govt. Agency.
		Pigeonpea T.15-15, Pusa Ageti, BDN-2, ICPL-87, GT-1, GT-100, GT-101, Banas, GTH-1	Dual purpose Sorghum Gujarat Jowar-39 and Malvan	---	• Breeder seed source SAU • Certified seed source NSC,GSSC,GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-)
		Black gram Zandewal, T-9, TPU-4, Pusa-1, Guj.Urad-1	Fodder Jowar GJ-39, Malvan	do	do
		Maize local:	Jowar**:**S-1049, SSG-59-3 (Multicut) Bajra: GF Bajra-1 (Multicut) Reduce the 25 % seed rate	do	• Bund maker can be provided under RKVY • Gypsum may supplied by GSFC under subsidies rate
	Medium rainfall, Medium black soil (Khedbrahma, Meghraj)	Cropping system: Cotton-Wheat, Maize-Wheat & Paddy-Wheat Cotton (Bt)	Clusterbean Hg-75, Gujarat Guar 1 or 2 Fodder Jowar GJ-39, Malvan	• 25% higher seed rate with 60 cm spacing • Reduce the fertilizer by 40 Per Cent • Seed hardening (soaking the seed 3 to 4 hours in water followed by shadow drying) • In fodder Sorghum, apply 20 kg S/ha through Gypsum	• Breeder seed source SAU • Certified seed source NSC,GSSC,GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-) • Ridge & furrow maker can be provided under RKVY or other Govt. Agency. • Gypsum provided under subsidies rate by Govt. Agency.

		Castor GCH-2,GCH-3,GCH-5,GCH-6 (root rot resistance), GCH-7 (wilt resistance), GAUCH-1	• Castor (GCH-4,5 or 7) + Cowpea (GC-4 (one line of Cowpea in regular spacing of castor) Or • Castor (GCH-4,5 or 7) + Purva Til (purva-1) (1:1 Row ratio)	• Seed hardening (soaking the seed 4 to 6 hours in water followed by shadow drying) • Reduction in fertilizer application by 50 Per Cent • Sowing distance 120 cm for castor • No fertilizer application for inter crop	• Breeder seed source SAU • Certified seed source NSC,GSSC,GUJCOMASOL • Bund maker provide under RKVY • Seed drill can be provided under RKVY or any other Govt. Agency on subsidies rate
		Maize -Private Hybrids-Pusa early hybrids-1 & 2 -Improved Var. Farm sameri, Guj.Maize-1,2,3,4 & 6, Narmada moti	Fodder Jowar GJ-39, Malvan	• Wider spacing at 60 cm with 25 Per Cent higher seed rate • Reduce the fertilizer application by 40 Per Cent • In fodder Sorghum, apply 20 kg S/ha through Gypsum	• Breeder seed source SAU • Certified seed source NSC,GSSC,GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-) • Gypsum provided under subsidies rate by Govt. Agency.
		Groundnut -Spreading type GAUG-10, GG-11, 12 & 13. -Bunch type (Errect) J-11, GG-2, GL-24, GG4, 5 & 6, GAUG-1 -Semi spreading GG-20	Sesame Purva (semi rabi var.) Purva-1	As such	• Breeder seed source SAU • Certified seed source NSC,GSSC,GUJCOMASOL
		Black gram Zandewal, T-9, TPU-4, Pusa-1, Guj.Urad-1	Fodder Jowar GJ-39, Malvan	do	do
		Pigeonpea T.15-15, Pusa Ageti, BDN-2, ICPL-87, GT-1, GT-100, GT-101, Banas, GTH-1	Dual purpose Sorghum Gujarat Jowar-39 and Malvan	---	• Breeder seed source SAU • Certified seed source NSC,GSSC,GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-)

		Maize local:	Jowar:S-1049, SSG-59-3 (Multicut) Bajra: GF Bajra-1 (Multicut) Reduce the 25 % seed rate	• Compartmental Bunding(3.6 m x 6.0 m) • S applicaton @ 20 kg/ha in form of Gypsum	• Bund maker can be provided under RKVY • Gypsum may supplied by GSFC under subsidies rate
	High rainfall, Medium black Soil. (Idar, Bhiloda, Modasa, Malpur,Bayad, Vadali, Vijaynagar)	Cropping system: Cotton-Wheat, Maize-Wheat & Groundnut-Wheat	Fodder Jowar GJ-39, Malvan	• Wider spacing at 60 cm with 25 Per Cent higher seed rate • Reduce the fertilizer application by 40 Per Cent • In fodder Sorghum, apply 20 kg S/ha through Gypsum	• Breeder seed source SAU • Certified seed source NSC,GSSC,GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-) • Ridge & furrow maker can be provided under RKVY or other Govt. Agency. • Gypsum provided under subsidies rate by Govt. Agency.
		Maize -Private Hybrids-Pusa early hybrids-1 & 2 -Improved Var. Farm sameri, Guj.Maize-1,2,3,4 & 6, Narmada moti	Fodder Jowar GJ-39, Malvan	• Wider spacing at 60 cm with 25 Per Cent higher seed rate • Reduce the fertilizer application by 40 Per Cent • In fodder Sorghum, apply 20 kg S/ha through Gypsum	• Breeder seed source SAU • Certified seed source NSC,GSSC,GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-) • Gypsum provided under subsidies rate by Govt. Agency.
		Castor GCH-2,GCH-3,GCH-5,GCH-6 (root rot resistance), GCH-7 (wilt resistance), GAUCH-1	• Castor (GCH-4,5 or 7) + Cowpea (GC-4 (one line of Cowpea in regular spacing of castor) Or • Castor (GCH-4,5 or 7) + Purva Til (purva-1) (1:1 Row ratio)	• Seed hardening (soaking the seed 4 to 6 hours in water followed by shadow drying) • Reduction in fertilizer application by 50 Per Cent • Sowing distance 120 cm for castor • No fertilizer application for inter crop	• Breeder seed source SAU • Certified seed source NSC,GSSC,GUJCOMASOL • Bund maker provide under RKVY • Seed drill can be provided under RKVY or any other Govt. Agency on subsidies rate

		Groundnut -Spreading type GAUG-10, GG-11, 12 & 13. -Bunch type (Errect) J-11, GG-2, GL-24, GG4, 5 & 6, GAUG-1 -Semi spreading GG-20 Cotton (Bt)	Sesame Purva (semi rabi var.) Purva-1	As such	• Breeder seed source SAU • Certified seed source NSC,GSSC,GUJCOMASOL
		Pigeonpea T.15-15, Pusa Ageti, BDN-2, ICPL-87, GT-1, GT-100, GT-101, Banas, GTH-1	Dual purpose Sorghum Gujarat Jowar-39 and Malvan	---	• Breeder seed source SAU • Certified seed source NSC,GSSC,GUJCOMASOL • Seed drill under RKVY (costing Rs. 30000/-)
		Maize local:	Jowar**:**S-1049, SSG-59-3 (Multicut) Bajra: GF Bajra-1 (Multicut) Reduce the 25 % seed rate	do	• Bund maker can be provided under RKVY • Gypsum may supplied by GSFC under subsidies rate

Condition			**Suggested Contingency measures**		
Early season drought **(Normal onset)**	**Major Farming situation**	**Normal Crop/cropping system**	**Crop management**	**Soil nutrient & moisture conservation measues**	**Remarks on Implementation**
Normal onset followed by 15-20 days dry spell after sowing	High rainfall Sandy loam Soil (Himmatnagar, Prantij, Talod,	Cropping System: Cotton-Wheat, Groundnut-Wheat and Maize Wheat Cotton (Bt)	Gap filling and	Conservation of soil moisture by	Implements for hoeing &

leading to poor germination/crop stand etc.	Dhansura)		thinning to retain one plant / hill	hoeing and weeding. Use weeds as mulch	weeding be procured under RKVY or Govt. subsidies rate
		Groundnut -Spreading type GAUG-10, GG-11, 12 & 13. -Bunch type (Errect) J-11, GG-2, GL-24, GG4, 5 & 6, GAUG-1 -Semi spreading GG-20	Gap filling	do	do
		Castor GCH-2,GCH-3,GCH-5,GCH-6 (root rot resistance), GCH-7 (wilt resistance), GAUCH-1	Gap filling and Thinning to retain one plant/hill	do	do
		Maize -Private Hybrids-Pusa early hybrids-1 & 2 -Improved Var. Farm sameri, Guj.Maize-1,2,3,4 & 6, Narmada moti	Gap filling and thinning to maintain 20 cm plant to plant distance	do	do
		Pigeonpea T.15-15, Pusa Ageti, BDN-2, ICPL-87, GT-1, GT-100, GT-101, Banas, GTH-1	Gap filling and Thinning to retain one plant/hill	do	do
		Green gram Guj.Mung-1,2,3 & 4, K-851	----	do	do
		Black gram Zandewal, T-9, TPU-4, Pusa-1, Guj.Urad-1	----	Conservation of soil moisture by hoeing and weeding. Use weeds as mulch	Implements for hoeing & weeding be procured under RKVY or Govt. subsidies rate
		Maize local:	As such	As such	-----
	Medium rainfall, Medium black soil (Khedbrahma, Meghraj)	Cropping system: Cotton-Wheat, Maize-Wheat & Paddy-Wheat Cotton (Bt)	Gap filling and thinning to retain one plant / hill	Conservation of soil moisture by hoeing and weeding. Use weeds as mulch	do

		Castor GCH-2,GCH-3,GCH-5,GCH-6 (root rot resistance), GCH-7 (wilt resistance), GAUCH-1	do	do	do
		Maize -Private Hybrids-Pusa early hybrids-1 & 2 -Improved Var. Farm sameri, Guj.Maize-1,2,3,4 & 6, Narmada moti	Gap filling and thinning to maintain 20 cm plant to plant distance	Conservation of soil moisture by hoeing and weeding. Use weeds as mulch	Implements for hoeing & weeding be procured under RKVY or Govt. subsidies rate
		Groundnut -Spreading type GAUG-10, GG-11, 12 & 13. -Bunch type (Errect) J-11, GG-2, GL-24, GG4, 5 & 6, GAUG-1 -Semi spreading GG-20	Gap filling	Conservation of soil moisture by hoeing and weeding. Use weeds as mulch	Implements for hoeing & weeding be procured under RKVY or Govt. subsidies rate
		Black gram Zandewal, T-9, TPU-4, Pusa-1, Guj.Urad-1	----	do	do
		Pigeonpea T.15-15, Pusa Ageti, BDN-2, ICPL-87, GT-1, GT-100, GT-101, Banas, GTH-1	Gap filling and Thinning to retain one plant/hill	do	do
		Maize local:	As such	As such	-----
	High rainfall, Medium black Soil. (Idar, Bhiloda, Modasa, Malpur,Bayad, Vadali, Vijaynagar)	Cropping system: Cotton-Wheat, Maize-Wheat & Groundnut-Wheat Bajra GHB-558,538,577,719,732	Thinning to maintain 10 to 15 cm plant to plant distance	Conservation of soil moisture by hoeing and weeding. Use weeds as mulch	Implements for hoeing & weeding be procured under RKVY or Govt. subsidies rate
		Maize -Private Hybrids-Pusa early hybrids-1 & 2	Gap filling and thinning to maintain 20 cm	do	do

		-Improved Var. Farm sameri, Guj.Maize-1,2,3,4 & 6, Narmada moti	plant to plant distance		
		Castor GCH-2,GCH-3,GCH-5,GCH-6 (root rot resistance), GCH-7 (wilt resistance), GAUCH-1	Gap filling and Thinning to retain one plant/hill	Conservation of soil moisture by hoeing and weeding. Use weeds as mulch	Implements for hoeing & weeding be procured under RKVY or Govt. subsidies rate
		Groundnut -Spreading type GAUG-10, GG-11, 12 & 13. -Bunch type (Errect) J-11, GG-2, GL-24, GG4, 5 & 6, GAUG-1 -Semi spreading GG-20 Cotton (Bt)	Gap filling	Conservation of soil moisture by hoeing and weeding. Use weeds as mulch	do
		Pigeonpea T.15-15, Pusa Ageti, BDN-2, ICPL-87, GT-1, GT-100, GT-101, Banas, GTH-1	Gap filling and Thinning to retain one plant/hill	do	do
		Maize local:	As such	As such	-----

Condition			**Suggested Contingency measures**		
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period)	**Major Farming situation**	**Normal Crop/cropping system**	**Crop management**	**Soil nutrient & moisture conservation measues**	**Remarks on Implementation**
At vegetative stage	High rainfall Sandy loam Soil (Himmatnagar, Prantij, Talod,	Cropping System: Cotton-Wheat, Groundnut-Wheat and Maize Wheat Cotton (Bt)	• Reduce the plant population by 15 to 20 Per Cent and use as mulching material • Alternate furrow	• Conservation of soil moisture by hoeing and weeds use as mulch • Mulching of farm byproduct @ 10t/ha (castor	• Implements for hoeing & weeding be procured under RKVY or Govt. subsides rate • Mulching material under

	Dhansura)		irrigation or irrigation through MIS if possible	shell or Bajra husk) • Postponed the top dressing of N fertilizers • Mulch9ing (Plastic film 25 micron & 200 kg/ha)	RKVY or Govt. subsides rate • Water harvested structure can be constructed under NAREGA
		Groundnut -<u>Spreading type</u> GAUG-10, GG-11, 12 & 13. -<u>Bunch type (Errect)</u> J-11, GG-2, GL-24, GG4, 5 & 6, GAUG-1 -<u>Semi spreading</u> GG-20	• Weeding & hoeing • Protection against sucking pest(Spraying of Methyle o demeton or Diamethioate 10 ml/10 lit of water) • If possible life saving irrigation through MIS	• Aviod top dressing of N fertilizers • Mulching of farm byproduct @ 10t/ha (castor cell or Bajara husk) • Mulching (Plastic film 25 micron @200 kg/ha)	• Implements for hoeing & weeding be procured under RKVY or Govt. subsides rate • Mulching material can be provided under RKVY • MIS can be provided under subsidies rate through GGRC
		Castor GCH-2,GCH-3,GCH-5,GCH-6 (root rot resistance), GCH-7 (wilt resistance), GAUCH-1	• Reduce the plant population by 10 to 15 Per Cent and use as mulch • Alternate furrow irrigation • If possible life saving irrigation through MIS	• Conservation of soil moisture by hoeing and weeds use as mulch • Mulching of farm byproduct @ 10t/ha (castor shell or Bajra) • Postponed the top dressing of N fertilizers • Mulching (Plastic film 25 micron @ 200 kg/ha)+ Spraying of 5% kaolin solution	• Implements for hoeing & weeding be procured under RKVY or Govt. subsidies rate • Mulching material under RKVY or Govt. subsidies rate • Water harvested structure can be constructed under NAREGA • MIS can be provided under subsidies rate through GGRC
		<u>Maize</u> -Private Hybrids-Pusa early hybrids-1 & 2 -Improved Var. Farm sameri, Guj.Maize-1,2,3,4 & 6, Narmada moti	• Thining of 20 Per Cent plant from the line and use as fodder • Life saving irrigation • Earthingup by harrowing • Control of leaf borer apply 3 to 4 granules of tenic in leaf hole	• Delayed top dressing of N fertilizers	• Soil earthing up implement be procured under RKVY or Govt. subsidies rate
		Pigeonpea T.15-15, Pusa Ageti, BDN-2, ICPL-87, GT-	• Reduce the plant population by 10 to 15 Per Cent and use as	• Conservation of soil moisture by hoeing and weeds use as mulch	• Implements for hoeing & weeding be procured under RKVY or Govt. subsidies

		1, GT-100, GT-101, Banas, GTH-1	mulch • Alternate furrow irrigation • weeding • Protection against sucking pest (Spraying of Methyle o demeton or Diamethioate 10 ml/10 lit of water) • If possible life saving irrigation through MIS	• Mulching of farm byproduct @ 10t/ha (castor shell or Bajra) • Postponed the top dressing of N fertilizers • Mulching (Plastic film 25 micron @ 200 kg/ha)	rate • Mulching material under RKVY or Govt. subsidies rate • Water harvested structure can be constructed under NAREGA • MIS can be provided under subsidies rate through GGRC
		Green gram Guj.Mung-1,2,3 & 4, K-851	• Removal of 20% plant from the row • Weeding • Protection against sucking pest (Spraying of Methyle o demeton or Diamethioate 10 ml/10 lit of water) • If possible life saving irrigation through MIS	Interculturing	• Implements for hoeing & weeding be procured under RKVY or Govt. subsidies rate
		Black gram Zandewal, T-9, TPU-4, Pusa-1, Guj.Urad-1	• Removal of 20% plant from the row • Weeding • Protection against sucking pest (Spraying of Methyle o demeton or Diamethioate 10 ml/10 lit of water) • -If possible life saving irrigation through MIS • Alternate furrow irrigation or irrigation through MIS if possible.	• Interculturing • weeds use as mulch • Mulching of farm byproduct @ 10t/ha (castor shell or Bajra husk) • Postponed the top dressing of N fertilizers • Mulch9ing (Plastic film 25 micron & 200 kg/ha)	--
		Maize local:	do	do	---
	Medium	Cropping system:			

	rainfall, Medium black soil (Khedbrahma, Meghraj)	Cotton-Wheat, Maize-Wheat & Paddy-Wheat <u>Cotton (Bt)</u>	Reduce the plant population by 15 to 20 Per Cent and use as mulching material	Conservation of soil moisture by hoeing and	• Implements for hoeing & weeding be procured under RKVY or Govt. subsides rate • Mulching material under RKVY or Govt. subsides rate • Water harvested structure can be constructed under NAREGA
		Castor GCH-2,GCH-3,GCH-5,GCH-6 (root rot resistance), GCH-7 (wilt resistance), GAUCH-1	• Reduce the plant population by 10 to 15 Per Cent and use as mulch • Alternate furrow irrigation • If possible life saving irrigation through MIS	• Conservation of soil moisture by hoeing and weeds use as mulch • Mulching of farm byproduct @ 10t/ha (castor shell or Bajra) • Postponed the top dressing of N fertilizers • Mulching (Plastic film 25 micron @ 200 kg/ha)+ Spraying of 5% kaolin solution	• Implements for hoeing & weeding be procured under RKVY or Govt. subsidies rate • Mulching material under RKVY or Govt. subsidies rate • Water harvested structure can be constructed under NAREGA • MIS can be provided under subsidies rate through GGRC
		<u>Maize</u> -Private Hybrids-Pusa early hybrids-1 & 2 -Improved Var. Farm sameri, Guj.Maize-1,2,3,4 & 6, Narmada moti	• Thining of 20 Per Cent plant from the line and use as fodder • Life saving irrigation • Earthingup by harrowing • Control of leaf borer apply 3 to 4 granules of tenic in leaf hole	Delayed top dressing of N fertilizers	Soil earthing up implement be procured under RKVY or Govt. subsidies rate

		Groundnut -Spreading type GAUG-10, GG-11, 12 & 13. -Bunch type (Errect) J-11, GG-2, GL-24, GG4, 5 & 6, GAUG-1 -Semi spreading GG-20	• Weeding & hoeing • Protection against sucking pest(Spraying of Methyle o demeton or Diamethioate 10 ml/10 lit of water) • If possible life saving irrigation through MIS	• Aviod top dressing of N fertilizers • Mulching of farm byproduct @ 10t/ha (castor cell or Bajara husk) • Mulching (Plastic film 25 micron @200 kg/ha)	• Implements for hoeing & weeding be procured under RKVY or Govt. subsides rate • Mulching material can be provided under RKVY • MIS can be provided under subsidies rate through GGRC
		Black gram Zandewal, T-9, TPU-4, Pusa-1, Guj.Urad-1	do	Interculturing	do
		Pigeonpea T.15-15, Pusa Ageti, BDN-2, ICPL-87, GT-1, GT-100, GT-101, Banas, GTH-1	• Reduce the plant population by 10 to 15 Per Cent and use as mulch • Alternate furrow irrigation • weeding • Protection against sucking pest (Spraying of Methyle o demeton or Diamethioate 10 ml/10 lit of water) • If possible life saving irrigation through MIS	• Conservation of soil moisture by hoeing and weeds use as mulch • Mulching of farm byproduct @ 10t/ha (castor shell or Bajra) • Postponed the top dressing of N fertilizers • Mulching (Plastic film 25 micron @ 200 kg/ha)	• Implements for hoeing & weeding be procured under RKVY or Govt. subsidies rate • Mulching material under RKVY or Govt. subsidies rate • Water harvested structure can be constructed under NAREGA • MIS can be provided under subsidies rate through GGRC
		Maize local:	• Interculturing • Soil mulch by selo interculturing • Life saving irrigation if possible.	• Restrict the fertilizer application if moisture is insufficient • Reduce 25% plant population	---
	High rainfall, Medium black Soil. (Idar, Bhiloda, Modasa,	Cropping system: Cotton-Wheat, Maize-Wheat & Groundnut-Wheat	• Thinning of 20 to 25 % plants within row • Life saving irrigation if possible	• Conservation of soil moisture by hoeing and weeding • Postponed the top dressing	• Implements for hoeing & weeding be procured under RKVY or Govt. subsides rate

	Malpur,Bayad, Vadali, Vijaynagar)	Bajra GHB-558,538,577,719,732		of N fertilizers • Spraying of 5 % kaoline solution	• Mulching material under RKVY or Govt. subsides rate • Water harvested structure can be constructed under NAREGA
		Maize -Private Hybrids-Pusa early hybrids-1 & 2 -Improved Var. Farm sameri, Guj.Maize-1,2,3,4 & 6, Narmada moti	• Thining of 20 Per Cent plant from the line and use as fodder • Life saving irrigation • Earthingup by harrowing • Control of leaf borer apply 3 to 4 granules of tenic in leaf hole	Delayed top dressing of N fertilizers	Soil earthing up implement be procured under RKVY or Govt. subsidies rate
		Castor GCH-2,GCH-3,GCH-5,GCH-6 (root rot resistance), GCH-7 (wilt resistance), GAUCH-1	• Reduce the plant population by 10 to 15 Per Cent and use as mulch • Alternate furrow irrigation • If possible life saving irrigation through MIS	• Conservation of soil moisture by hoeing and weeds use as mulch • Mulching of farm byproduct @ 10t/ha (castor shell or Bajra) • Postponed the top dressing of N fertilizers • Mulching (Plastic film 25 micron @ 200 kg/ha)+ Spraying of 5% kaolin solution	• Implements for hoeing & weeding be procured under RKVY or Govt. subsidies rate • Mulching material under RKVY or Govt. subsidies rate • Water harvested structure can be constructed under NAREGA • MIS can be provided under subsidies rate through GGRC
		Groundnut -Spreading type GAUG-10, GG-11, 12 & 13. -Bunch type (Errect) J-11, GG-2, GL-24, GG4, 5 & 6, GAUG-1 -Semi spreading GG-20 Cotton (Bt)	• Weeding & hoeing • Protection against sucking pest(Spraying of Methyle o demeton or Diamethioate 10 ml/10 lit of water) • If possible life saving irrigation through MIS	• Aviod top dressing of N fertilizers • Mulching of farm byproduct @ 10t/ha (castor cell or Bajara husk) • Mulching (Plastic film 25 micron @200 kg/ha)	• Implements for hoeing & weeding be procured under RKVY or Govt. subsidies rate • Mulching material under RKVY or Govt. subsidies rate • Water harvested structure can be constructed under NAREGA MIS can be provided under

					subsidies rate through GGRC
		Pigeonpea T.15-15, Pusa Ageti, BDN-2, ICPL-87, GT-1, GT-100, GT-101, Banas, GTH-1	• Reduce the plant population by 10 to 15 Per Cent and use as mulch • Alternate furrow irrigation • weeding • Protection against sucking pest (Spraying of Methyle o demeton or Diamethioate 10 ml/10 lit of water) • If possible life saving irrigation through MIS	• Conservation of soil moisture by hoeing and weeds use as mulch • Mulching of farm byproduct @ 10t/ha (castor shell or Bajra) • Postponed the top dressing of N fertilizers • Mulching (Plastic film 25 micron @ 200 kg/ha)	• Implements for hoeing & weeding be procured under RKVY or Govt. subsidies rate • Mulching material under RKVY or Govt. subsidies rate • Water harvested structure can be constructed under NAREGA • MIS can be provided under subsidies rate through GGRC
		Maize local:	do	do	---

Condition			**Suggested Contingency measures**		
Mid season drought (long dry spell)	**Major Farming situation**	**Normal Crop/cropping system**	**Crop management**	**Soil nutrient & moisture conservation measues**	**Remarks on Implementation**
At flowering/ fruiting stage	High rainfall Sandy loam Soil (Himmatnagar, Prantij, Talod, Dhansura)	Cropping System: Cotton-Wheat, Groundnut-Wheat and Maize Wheat Cotton (Bt)	• Reduce the plant population by 15 to 20 Per Cent and use as mulching material • Alternate furrow irrigation or irrigation through drip system • Protect the crop against parawilt: • Band application of organic manures and 25% NPK as additional dose • Spraying of 0.5 % $MgSO_4$ solution • Drenching of *Trichoderma Viride* and *Pseudomonas fluorescence* (PGPS) 100 gm in 10 lit. water	• Avoid top dressing of N fertilizers • Mulching of farm byproduct @ 10t/ha (castor shell or Bajra husk) • Mulching (Plastic film 25 micron @ 200 kg/ha)	Mulching material like plastic film can be provided under RKVY or Cotton Mission
		Groundnut -Spreading type GAUG-10, GG-11, 12 & 13. -Bunch type (Errect) J-11, GG-2, GL-24, GG4, 5 & 6, GAUG-1 -Semi spreading GG-20	Life saving irrigation	• Mulching of farm byproduct @ 10t/ha (castor cell, Bajra, wheat husk) • Mulching (Plastic film 25 micron @ 200 kg/ha)	• Implements for hoeing & weeding be procured under RKVY or Govt. subsidies rate • Mulching material under RKVY or Govt. subsides rate
		Castor GCH-2,GCH-3,GCH-5,GCH-6 (root rot resistance), GCH-7 (wilt resistance), GAUCH-1	• Removal of plant population from 20% and use as mulch • Alternate furrow irrigation or irrigation through MIS if possible • Remove the 2 lower elder leaves and use as mulch	• Avoid top dressing of N fertilizers • Spraying of 5% kaolin solution • Mulching of farm byproduct @ 10t/ha (castor shell or Bajra husk) • Mulching (Plastic film 25 micron @ 200 kg/ha)	• Kaolin and mulching material provided under RKVY or other Govt. Agency • MIS can be provided under GGRC
		Maize	• Removal of 20 % plant and use as	• Mulching of farm	Mulching material

		-Private Hybrids-Pusa early hybrids-1 & 2 -Improved Var. Farm sameri, Guj.Maize-1,2,3,4 &6, Narmada moti	fodder • Removal of barren plants and use as fodder • Life saving irrigation • De tesseling of every third row and use as fodder	byproduct as mulching material @ 10t/ha (castor shell or Bajra) • Postponed the top dressing of N fertilizers • Mulching (Plastic film 25 micron @ 200 kg/ha)	under RKVY or Govt. subsides rate
		<u>Pigeonpea</u> T.15-15, Pusa Ageti, BDN-2, ICPL-87, GT-1, GT-100, GT-101, Banas, GTH-1	• Removal of 20% to 25 % plant from the row and use as fodder • life saving irrigation • Protection against sucking pest (Spraying of Methyle o demeton or Diamethioate 10 ml/10 lit of water) • Protection against podborer (spraying of monocrotophos 10 ml, endosulphan 20 ml or Acefet 20 gm in 10 lit of water at 50% flowering followed by 15 day)	---	Sprayers and duster be procured under RKVY or pulse production mission
		<u>Black gram</u> Zandewal, T-9, TPU-4, Pusa-1, Guj. Urad-1	do	---	do
		<u>Maize local:</u>	Life saving irrigation if possible.	Reduce 25% plant population	---
	Medium rainfall, Medium black soil (Khedbrahma, Meghraj)	Cropping system: Cotton-Wheat, Maize-Wheat & Paddy-Wheat <u>Cotton (Bt)</u>	• Reduce the plant population by 15 to 20 Per Cent and use as mulching material • Alternate furrow irrigation or irrigation through drip system • Protect the crop against parawilt: • Band application of organic manures and 25% NPK as additional dose • Spraying of 0.5 % $MgSO_4$ solution • Drenching of *Trichoderma Viride*	• Avoid top dressing of N fertilizers • Mulching of farm byproduct @ 10t/ha (castor shell or Bajra husk) • Mulching (Plastic film 25 micron @ 200 kg/ha)	Mulching material like plastic film can be provided under RKVY or Cotton Mission

			and *Pseudomonas fluorescence* (PGPS) 100 gm in 10 lit. water		
		Castor GCH-2,GCH-3,GCH-5,GCH-6 (root rot resistance), GCH-7 (wilt resistance), GAUCH-1	• Removal of plant population from 20% and use as mulch • Alternate furrow irrigation or irrigation through MIS if possible • Remove the 2 lower elder leaves and use as mulch	• Avoid top dressing of N fertilizers • Spraying of 5% kaolin solution • Mulching of farm byproduct @ 10t/ha (castor shell or Bajra husk) • Mulching (Plastic film 25 micron @ 200 kg/ha)	• Kaolin and mulching material provided under RKVY or other Govt. Agency • MIS can be provided under GGRC
		Maize -Private Hybrids-Pusa early hybrids-1 & 2 -Improved Var. Farm sameri, Guj.Maize-1,2,3,4 & 6, Narmada moti	• Removal of 20 % plant and use as fodder • Removal of barren plants and use as fodder • Life saving irrigation • De tesseling of every third row and use as fodder	• Mulching of farm byproduct as mulching material @ 10t/ha (castor shell or Bajra) • Postponed the top dressing of N fertilizers • Mulching (Plastic film 25 micron @ 200 kg/ha)	Mulching material under RKVY or Govt. subsides rate
		Groundnut -Spreading type GAUG-10, GG-11, 12 & 13. -Bunch type (Errect) J-11, GG-2, GL-24, GG4, 5 & 6, GAUG-1 -Semi spreading GG-20	Life saving irrigation	• Mulching of farm byproduct @ 10t/ha (castor cell, Bajra, wheat husk) • Mulching (Plastic film 25 micron @ 200 kg/ha)	• Implements for hoeing & weeding be procured under RKVY or Govt. subsidies rate • Mulching material under RKVY or Govt. subsides rate
		Black gram Zandewal, T-9, TPU-4, Pusa-1, Guj.Urad-1	do	---	do
		Pigeonpea T.15-15, Pusa Ageti, BDN-2, ICPL-87, GT-1, GT-100, GT-101, Banas, GTH-1	do	---	Sprayers and duster be procured under RKVY or pulse production mission
		Maize local:	do	Reduce 25% plant population	---

	High rainfall, Medium black Soil. (Idar, Bhiloda, Modasa, Malpur,Bayad, Vadali, Vijaynagar)	Cropping system: Cotton-Wheat, Maize-Wheat & Groundnut-Wheat	• Remove the barren tillers and use as fodder • Remove the every fourth row and use as dry fodder • Life saving irrigation if possible	• Spraying of 5% kaolin solution	• Labour for harvesting can be provided under MANREGA • Kaolin provided under RKVY or NFSM
		Maize -Private Hybrids-Pusa early hybrids-1 & 2 -Improved Var. Farm sameri, Guj.Maize-1,2,3,4 & 6, Narmada moti	• Removal of 20 % plant and use as fodder • Removal of barren plants and use as fodder • Life saving irrigation • De tesseling of every third row and use as fodder	• Mulching of farm byproduct as mulching material @ 10t/ha (castor shell or Bajra) • Postponed the top dressing of N fertilizers • Mulching (Plastic film 25 micron @ 200 kg/ha)	Mulching material under RKVY or Govt. subsides rate
		Castor GCH-2,GCH-3,GCH-5,GCH-6 (root rot resistance), GCH-7 (wilt resistance), GAUCH-1	• Removal of plant population from 20% and use as mulch • Alternate furrow irrigation or irrigation through MIS if possible • Remove the 2 lower elder leaves and use as mulch	• Avoid top dressing of N fertilizers • Spraying of 5% kaolin solution • Mulching of farm byproduct @ 10t/ha (castor shell or Bajra husk) • Mulching (Plastic film 25 micron @ 200 kg/ha)	• Kaolin and mulching material provided under RKVY or other Govt. Agency • MIS can be provided under GGRC
		Groundnut -Spreading type GAUG-10, GG-11, 12 & 13. -Bunch type (Errect) J-11, GG-2, GL-24, GG4, 5 & 6, GAUG-1 -Semi spreading GG-20 Cotton (Bt)	Life saving irrigation	• Mulching of farm byproduct @ 10t/ha (castor cell, Bajra, wheat husk) • Mulching (Plastic film 25 micron @ 200 kg/ha)	• Implements for hoeing & weeding be procured under RKVY or Govt. subsidies rate • Mulching material under RKVY or Govt. subsides rate

		Pigeonpea T.15-15, Pusa Ageti, BDN-2, ICPL-87, GT-1, GT-100, GT-101, Banas, GTH-1	• Removal of 20% to 25 % plant from the row and use as fodder • life saving irrigation • Protection against sucking pest (Spraying of Methyle o demeton or Diamethioate 10 ml/10 lit of water) • Protection against podborer (spraying of monocrotophos 10 ml, endosulphan 20 ml or Acefet 20 gm in 10 lit of water at 50% flowering followed by 15 day)	---	• Sprayers and duster be procured under RKVY or pulse production mission
		Maize local:	do	Reduce 25% plant population	---

Condition			**Suggested Contingency measures**		
Terminal drought (Early withdrawal of monsoon)	**Major Farming situation**	**Normal Crop/cropping system**	**Crop management**	**Rabi Crop planning**	**Remarks on Implementation**
At maturity stage	High rainfall Sandy loam Soil (Himmatnagar, Prantij, Talod, Dhansura)	Cropping System: Cotton-Wheat, Groundnut-Wheat and Maize Wheat Cotton (Bt)	• Pick up lint from brusted ball • Alternate furrow irrigation • Cut down the lower unproductive twings and kept as mulch	• Land preparation for rabi crop according to ground water recharging • Procurements of inputs	---
		Groundnut -Spreading type GAUG-10, GG-11, 12 & 13. -Bunch type (Errect) J-11, GG-2, GL-24, GG4, 5 & 6, GAUG-1 -Semi spreading GG-20	• Harvest the crop at physiological maturity stage • Life saving irrigation	• Land preparation for rabi crop according to ground water recharging • Procurements of inputs	---
		Castor GCH-2,GCH-3,GCH-5,GCH-6 (root rot resistance), GCH-7 (wilt resistance),	• Alternate furrow irrigation • Harvest the mature spike • Harvest the spike at physiological maturity stage	---	---

		GAUCH-1			
		Maize -Private Hybrids-Pusa early hybrids-1 & 2 -Improved Var. Farm sameri, Guj.Maize-1,2,3,4 & 6, Narmada moti	• Harvest the crop at physiological maturity stage • Life saving irrigation in alternate furrow • Harvest the green cob and sale it	• Land preparation for rabi crop according to ground water recharging • Procurements of inputs	---
		Pigeonpea T.15-15, Pusa Ageti, BDN-2, ICPL-87, GT-1, GT-100, GT-101, Banas, GTH-1	• Alternate furrow irrigation • Protection against sucking pest (Spraying of Methyle o demeton or Diamethioate 10 ml/10 lit of water) • Protection against podborer (spraying of monocrotophos 10 ml, endosulphan 20 ml or Acefet 20 gm in 10 lit of water at 50% flowering followed by 15 day) • Pickup green pod and market as green vegetable • Harvest the crop at physiological maturity stage	• Land preparation for rabi crop according to ground water recharging • Procurements of inputs	---
		Black gram Zandewal, T-9, TPU-4, Pusa-1, Guj. Urad-1	• Life saving irrigation • Harvest mature pods	do	---
		Maize local:	do	do	---
	Medium rainfall, Medium black soil (Khedbrahma, Meghraj)	Cropping system: Cotton-Wheat, Maize-Wheat & Paddy-Wheat Cotton (Bt)	• Pick up lint from brusted ball • Alternate furrow irrigation • Cut down the lower unproductive twings and kept as mulch	• Land preparation for rabi crop according to ground water recharging • Procurements of inputs	---

		Castor GCH-2,GCH-3,GCH-5,GCH-6 (root rot resistance), GCH-7 (wilt resistance), GAUCH-1	• Alternate furrow irrigation • Harvest the mature spike • Harvest the spike at physiological maturity stage	---	---
		Maize -Private Hybrids-Pusa early hybrids-1 & 2 -Improved Var. Farm sameri, Guj.Maize-1,2,3,4 & 6, Narmada moti	• Harvest the crop at physiological maturity stage • Life saving irrigation in alternate furrow • Harvest the green cob and sale it	do	---
		Groundnut -Spreading type GAUG-10, GG-11, 12 & 13. -Bunch type (Errect) J-11, GG-2, GL-24, GG4, 5 & 6, GAUG-1 -Semi spreading GG-20	• Harvest the crop at physiological maturity stage • Life saving irrigation	do	---
		Black gram Zandewal, T-9, TPU-4, Pusa-1, Guj. Urad-1	• Life saving irrigation • Harvest mature pods	• Land preparation for rabi crop according to ground water recharging • Procurements of inputs	---

		Pigeonpea T.15-15, Pusa Ageti, BDN-2, ICPL-87, GT-1, GT-100, GT-101, Banas, GTH-1	• Alternate furrow irrigation • Protection against sucking pest (Spraying of Methyle o demeton or Diamethioate 10 ml/10 lit of water) • Protection against podborer (spraying of monocrotophos 10 ml, endosulphan 20 ml or Acefet 20 gm in 10 lit of water at 50% flowering followed by 15 day) • Pickup green pod and market as green vegetable • Harvest the crop at physiological maturity stage	• Land preparation for rabi crop according to ground water recharging • Procurements of inputs	---
		<u>Maize local:</u>	do	do	do
	High rainfall, Medium black Soil. (Idar, Bhiloda, Modasa, Malpur,Bayad, Vadali, Vijaynagar)	Cropping system: Cotton-Wheat, Maize-Wheat & Groundnut-Wheat	Harvest the crop at physiological maturity stage	• Land preparation for rabi crop according to ground water recharging • Procurements of inputs	---
		<u>Maize</u> -Private Hybrids-Pusa early hybrids-1 & 2 -Improved Var. Farm sameri, Guj.Maize-1,2,3,4 & 6, Narmada moti	• Harvest the crop at physiological maturity stage • Life saving irrigation in alternate furrow • Harvest the green cob and sale it	• Land preparation for rabi crop according to ground water recharging • Procurements of inputs	---
		Castor GCH-2,GCH-3,GCH-5,GCH-6 (root rot resistance), GCH-7 (wilt resistance), GAUCH-1	• Alternate furrow irrigation • Harvest the mature spike • Harvest the spike at physiological maturity stage	---	---
		Groundnut -<u>Spreading type</u> GAUG-10, GG-11, 12	• Harvest the crop at physiological maturity stage • Life saving irrigation	• Land preparation for rabi crop according to ground water recharging	---

		& 13. -<u>Bunch type (Errect)</u> J-11, GG-2, GL-24, GG4, 5 & 6, GAUG-1 -<u>Semi spreading</u> GG-20 <u>Cotton (Bt)</u>		• Procurements of inputs	
		Pigeonpea T.15-15, Pusa Ageti, BDN-2, ICPL-87, GT-1, GT-100, GT-101, Banas, GTH-1	• Alternate furrow irrigation • Protection against sucking pest (Spraying of Methyle o demeton or Diamethioate 10 ml/10 lit of water) • Protection against podborer (spraying of monocrotophos 10 ml, endosulphan 20 ml or Acefet 20 gm in 10 lit of water at 50% flowering followed by 15 day) • Pickup green pod and market as green vegetable • Harvest the crop at physiological maturity stage	• Land preparation for rabi crop according to ground water recharging • Procurements of inputs	---
		<u>Maize local:</u>	do	do	do

2.1.2 Drought - Irrigated situation

Condition			Suggested Contingency measures		
	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Delayed released of water in canals due to low rainfall	**Situation does not arise**				

Condition			Suggested Contingency measures		
	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Non released of water incanals under delayed onset of moonson in catchment	**Situation does not arise**				

Condition			Suggested Contingency measures		
	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Non released of water in canals under delayed onset of monsoon in catchment	**Situation does not arise**				

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	**Situation does not arise**				

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	High rainfall Sandy loam Soil (Himmatnagar, Prantij, Talod, Dhansura)	Wheat: GW 496, GW 273, GW 322, GW 366	• GW 11 & GW 173 • Reduce area under wheat and replace by Gram: ICC 4,Gram Gujarat 1 & 2, Cumin: Guj 4 Fenugreek: Guj Fenugreek 1 Leafy Vegetables: Palak, Methi Dill Seed: Guj. Dillseed 1 Barley: RD 2052 Isabgol: Guj.Isabgul 1 &2	• Pressurized irrigation at critical stage • Narrow and short water basin in all the crops	• Seed sources Breeder-SAUs Certified: GSSC, GUJCOMASOL, NSC • Pressurized irrigation system through Gujarat Green Revolution Co.Ltd, under subsidized rate.
		Cotton: Bt cotton	-	• Adoption of drip irrigation and mulching (plastic mulch 50 micron 370 kg/ha)	Pressurized irrigation system through Gujarat Green Revolution Co.Ltd, under subsidized rate.
		Castor	-	• Adoption of drip irrigation and mulching (plastic mulch 50 micron 370 kg/ha)	do

		Brinjal: GOB-1, Doli-5, Pusa Purple round, Pusa Purple long	Gram ICCC-4, Guj-1 & 2 Cumin Guj- 1,2,3 & 4/ Coriander Guj-1 & 2, Fenugreek Guj- 1, Leafy vegetable Radish Japanese white, Pusa hemani, Pusa resham/ Carrot/ cauliflower Snow ball-16, hissar-1, Cabbage Pride of India, Early drum head, Pusa drum head,	• Alternate furrow irrigation through drip system	Mulching material can be provided under RKVY
		Tomato: Vaishali, Abhinav	Cluster bean Pusa Navabahar	• Trailing system	—
		Cluster bean Pusa Navabahar	Reduce the 25% area	• Alternate furrow irrigation through drip system	• Drip system can be provided under GGRC
		Cowpea (summer) Pusa falguni	do	• Ridge & furrow method Sowing • Alternate furrow irrigation	• Implement can be provided under RKVY
		Ginger: Sugandha	-	• Ridge & furrow irrigation	• Ridge & furrow system can be provided under RKVY
		Turmeric: Kesar	-----	do	do
		Lucerne:GALL-1 (Anand-2) Local (Kachchhi)	GALL-1	As such	Seed source from NSSC
		Oat: Cant, Local	Bajra (multicut) GF Bajra-1	As such	do

	Medium rainfall, Medium black soil (Khedbrahma, Meghraj)	Wheat: GW 496, GW 273, GW 322, GW 366	• GW 11 & GW 173 • Reduce area under wheat and replace by Gram: ICC 4,Gram Gujarat 1 & 2, Cumin: Guj 4 Fenugreek: Guj Fenugreek 1 Leafy Vegetables: Palak, Methi Dill Seed: Guj. Dillseed 1 Barley: RD 2052 Isabgol: Guj.Isabgul 1 &2	• Pressurized irrigation at critical stage • Narrow and short water basin in all the crops	• Seed sources Breeder-SAUs Certified: GSSC, GUJCOMASOL, NSC • Pressurized irrigation system through Gujarat Green Revolution Co.Ltd, under subsidized rate.
		Cotton: Bt cotton	-	Adoption of drip irrigation and mulching (plastic mulch 50 micron 370 kg/ha)	Pressurized irrigation system through Gujarat Green Revolution Co.Ltd, under subsidized rate.
		Castor	-	do	do
		Cucurbits	Bottle guard: Pusa navin, Anand-1 Bitter gourd: Arka harit Musk melon: Durgapura Madhu, Durgapura selection	Double row furrow basin planting Alternate furrow irrigation	—
		Okra: Guj Okra-1, Parbhani kranti	Cluster bean Pusa Navabahar	do	—

		Brinjal: GOB-1, Doli-5, Pusa Purple round, Pusa Purple long	Gram ICCC-4, Guj-1 & 2 Cumin Guj- 1,2,3 & 4/ Coriander Guj-1 & 2, Fenugreek Guj- 1, Leafy vegetable Radish Japanese white, Pusa hemani, Pusa resham/ Carrot/ cauliflower Snow ball-16, hissar-1, Cabbage Pride of India, Early drum head, Pusa drum head,	Alternate furrow irrigation through drip system	Mulching material can be provided under RKVY
		Tomato: Vaishali, Abhinav	Cluster bean Pusa Navabahar	Trailing system	—
		Cluster bean Pusa Navabahar	• Reduce the 25% area	• Alternate furrow irrigation through drip system	• Drip system can be provided under GGRC
		Cowpea (summer) Pusa falguni	do	• Ridge & furrow method Sowing • Alternate furrow irrigation	• Implement can be provided under RKVY
		Ginger: Sugandha		• Ridge & furrow irrigation	• Ridge & furrow system can be provided under RKVY
		Turmeric: Kesar	-----	do	do
		Lucerne**:**GALL-1 (Anand-2) Local (Kachchhi)	GALL-1	As such	Seed source from NSSC
		Oat**:** Cant, Local	Bajra (multicut) GF Bajra-1	As such	do

	High rainfall, Medium black Soil. (Idar, Bhiloda, Modasa, Malpur,Bayad, Vadali, Vijaynagar)	Wheat: GW 496, GW 273, GW 322, GW 366	• GW 11 & GW 173 • Reduce area under wheat and replace by Gram: ICC 4,Gram Gujarat 1 & 2, Cumin: Guj 4 Fenugreek: Guj Fenugreek 1 Leafy Vegetables: Palak, Methi Dill Seed: Guj. Dillseed 1 Barley: RD 2052 Isabgol: Guj.Isabgul 1 &2	• Pressurized irrigation at critical stage • Narrow and short water basin in all the crops	• Seed sources Breeder-SAUs Certified: GSSC, GUJCOMASOL, NSC • Pressurized irrigation system through Gujarat Green Revolution Co.Ltd, under subsidized rate.
		Cotton: Bt cotton	-	Adoption of drip irrigation and mulching (plastic mulch 50 micron 370 kg/ha)	Pressurized irrigation system through Gujarat Green Revolution Co.Ltd, under subsidized rate.
		Castor	-	do	do
		Cucurbits	Bottle guard: Pusa navin, Anand-1 Bitter gourd: Arka harit Musk melon: Durgapura Madhu, Durgapura selection	Double row furrow basin planting Alternate furrow irrigation	—
		Okra: Guj Okra-1, Parbhani kranti	Cluster bean Pusa Navabahar	do	—

		Brinjal: GOB-1, Doli-5, Pusa Purple round, Pusa Purple long	Gram ICCC-4, Guj-1 & 2 Cumin Guj- 1,2,3 & 4/ Coriander Guj-1 & 2, Fenugreek Guj- 1, Leafy vegetable Radish Japanese white, Pusa hemani, Pusa resham/ Carrot/ cauliflower Snow ball-16, hissar-1, Cabbage Pride of India, Early drum head, Pusa drum head,	Alternate furrow irrigation through drip system	Mulching material can be provided under RKVY
		Tomato: Vaishali, Abhinav	Cluster bean Pusa Navabahar	Trailing system	—
		Cluster bean Pusa Navabahar	• Reduce the 25% area	Alternate furrow irrigation through drip system	Drip system can be provided under GGRC
		Cowpea (summer) Pusa falguni	• Reduce the 25% area	• Ridge & furrow method Sowing • Alternate furrow irrigation	Implement can be provided under RKVY
		Ginger: Sugandha		• Ridge & furrow irrigation	Ridge & furrow system can be provided under RKVY
		Turmeric: Kesar	-----	do	do
		Lucerne**:**GALL-1 (Anand-2) Local (Kachchhi)	GALL-1	As such	Seed source from NSSC
		Oat**:** Cant, Local	Bajra (multicut) GF Bajra-1	As such	do

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**
Maize	-	-	Harvest mature cobs	To cover produce with plastic sheet (100 µm, UV stabilized colour plastic) or shift produces to farm shed and protection against pest/disease damage in storage etc,
Cotton	• Surface drainage(for water logging) • Interculturing for aeration • Apply 25 kg N/ha as additional dose	• Surface drainage(for water logging) • Apply 25 kg N/ha as additional dose • Protect the crop against whitefly and sucking pest(acefet 75 CE 15 gm, Trizophos 40 EC 25 ml, Emidachloropid 2.5 ml in 10 lit of water)	• Surface drainage (for water logging) • Protect the crop against Ball Warm(Endosulphan 35 EC Politreen C 44 EC 20 ml in 10 lit of water) • Apply 25 kg N/ha as additional dose	Cover the produce with plasticsheet(100 micron UV stabilized colour plastic)
Wheat	-	-	Surface drainage (for management of water logging, lodging crop and to control black point in grain.) Spray Mancozeb 0.2%	To cover produce with plastic sheet (100 µm, UV stabilized colour plastic) or shift produces to farm shed and protection against pest/disease damage in storage etc,
Groundnut	-	-	Quick surface drainage , Ditch channel around field	do
Pulses	-	-	Quick drainage , Harvest mature pods	• To cover produce with plastic sheet (100 µm , UV stabilized colour plastic) or shift produces to farm shed and protection against pest/disease damage in storage etc,

Horticulture				
Mango	-	Spray 0.2% wettable sulphur or 0.005% Hexaconazole for protection against PM	-	Unripe fruit may be used for pickles.
Ber	-	Spray 0.2 % wettable sulphur for protection against PM	-	-
Citrus	• Control citrus canker by spray of Copper Oxy chloride 0.2 % & streptocycline 100 ppm	• Control citrus canker by spray of Copper Oxy chloride 0.2 % & streptocycline 100 ppm	• Control citrus canker by spray of Copper Oxy chloride 0.2 % & streptocycline 100 ppm, • collect mature fruits	-
Sapota	-	• Spray 0.2% wettable sulphur or 0.05% Hexaconazole for protection against powdery mildew • Provide drainage	• Harvest the matured fruits • Provide drainage • Protect the fruit against fruit spot (Difenconazole 0.05%spray)	Transfer the fruits to safer place
Aonla	-	//	• Harvest the fruits • Protect the crop against fruit spots disease (Carbendazin 0.025 %)	//
Heavy rainfall with high speed winds in a short span[2]				
Maize	-	-	Harvest mature cobs, Quick surface drainage	To cover produce with plastic sheet (100 µm , UV stabilized colour plastic) or shift produces to farm shed and protection against pest/disease damage in storage etc,
Cotton	• Surface drainage(for water logging) • Interculturing for aeration • Apply 25 kg N/ha as additional dose	• Surface drainage(for water logging) • Apply 25 kg N/ha as additional dose • Protect the crop against whitefly and sucking pest(acefet 75 CE 15 gm, Trizophos 40 EC 25 ml, Emidachloropid 2.5 ml in 10 lit	• Surface drainage (for water logging) • Protect the crop against Ball Warm(Endosulphan 35 EC Politreen C 44 EC 20 ml in 10 lit of water) • Apply 25 kg N/ha as additional dose	Cover the produce with plasticsheet(100 micron UV stabilized colour plastic)

		of water)		
Wheat	Surface drainage (to control water logging condition)	Surface drainage (to control water logging condition)	• Surface drainage (for management of water logging, lodging crop and to control black point in grain, Spray Mancozeb 0.2%)	To cover produce with plastic sheet (100 µm , UV stabilized colour plastic) or shift produces to farm shed and protection against pest/disease damage in storage etc,
Groundnut	-	-	• Quick surface drainage , Ditch channel around field	do
Pulses	-	-	• Quick drainage , Harvest mature pods	do
Horticulture				
Mango	-	Spray 0.2% wettable sulphur or 0.005% Hexaconazole for protection against PM	Collect fallen fruits	Unripe fruit may be used for pickles.
Ber	-	Spray 0.2 % wettable sulphur for protection against PM	-	-
Citrus	Control citrus canker by spray of Copper Oxy chloride 0.2 % & streptocycline 100 ppm	Control citrus canker by spray of Copper Oxy chloride 0.2 % & streptocycline 100 ppm	• Control citrus canker by spray of Copper Oxy chloride 0.2 % & streptocycline 100 ppm, • collect mature fruits	-
Sapota	-	• Spray 0.2% wettable sulphur or 0.05% Hexaconazole for protection against powdery mildew • Provide drainage	• Harvest the matured fruits • Provide drainage • Protect the fruit against fruit spot (Difenconazole 0.05%spray)	Transfer the fruits to safer place
Aonla	-	• Spray 0.2% wettable sulphur or 0.05% Hexaconazole for protection against powdery mildew • Provide drainage	• Harvest the fruits • Protect the crop against fruit spots disease (Carbendazin 0.025 %)	Transfer the fruits to safer place
Outbreak of pests and diseases due to unseasonal rains				
Cotton	• Surface drainage(for water logging) • Interculturing for	• Surface drainage(for water logging) • Apply 25 kg N/ha as additional	• Surface drainage (for water logging) • Protect the crop against Ball	Cover the produce with plasticsheet(100 micron UV stabilized colour plastic)

	aeration • Apply 25 kg N/ha as additional dose	dose • Protect the crop against whitefly and sucking pest(acefet 75 CE 15 gm, Trizophos 40 EC 25 ml, Emidachloropid 2.5 ml in 10 lit of water)	Warm(Endosulphan 35 EC Politreen C 44 EC 20 ml in 10 lit of water) • Apply 25 kg N/ha as additional dose	
Wheat	Spray Mancozeb 0.2% (To control leaf Blight & rust)	Spray Mancozeb 0.2% (To control leaf Blight & rust)	To control black point in grain Spray Mancozeb 0.2%	-
Groundnut	• Spray 0.005% Hexaconazole for rust & tikka	Spray 0.005% Hexaconazole for rust & tikka	Spray 0.005% Hexaconazole for rust & tikka	-
Horticulture				
Mango	-	Spray 0.2% wettable sulphur or 0.005% Hexaconazole for protection against PM	Collect fallen fruits	Unripe fruit may be used for pickles.
Ber	-	Spray 0.2 % wettable sulphur for protection against PM	-	-
Citrus	Control citrus canker by spray of Copper Oxy chloride 0.2 % & streptocycline 100 ppm	Control citrus canker by spray of Copper Oxy chloride 0.2 % & streptocycline 100 ppm	• Control citrus canker by spray of Copper Oxy chloride 0.2 % & streptocycline 100 ppm, • collect mature fruits	-
Sapota	-	• Spray 0.2% wettable sulphur or 0.05% Hexaconazole for protection against powdery mildew • Provide drainage	• Harvest the matured fruits • Provide drainage • Protect the fruit against fruit spot (Difenconazole 0.05%spray)	Transfer the fruits to safer place
Aonla	-	• Spray 0.2% wettable sulphur or 0.05% Hexaconazole for protection against powdery mildew • Provide drainage	• Harvest the fruits • Protect the crop against fruit spots disease(Carbendazin 0.025 %)	do

2.3 Floods

Condition	Suggested contingency measure[o]			
	Seedling / nursery stage	**Vegetative stage**	**Reproductive stage**	**At harvest**
Transient water logging/ partial inundation[1]	Not Expected in this District			
Continuous submergence for more than 2 days[2]	Not Expected in this District			
Sea water intrusion[3]	Not Expected in this District			

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

Extreme event type	Suggested contingency measure			
	Seedling / nursery stage	**Vegetative stage**	**Reproductive stage**	**At harvest**
Heat Wave	Light & frequent irrigation to all crops	Light & frequent irrigation to all crops	Light & frequent irrigation to all crops	-
Cold wave	NA	NA	NA	NA
Frost	NA	NA	NA	NA
Hailstorm	NA	NA	NA	NA
Cyclone	NA	NA	NA	NA

2.5 Contingent strategies for Livestock, Poultry & Fisheries

2.5.1 Livestock

	Suggested contingency measures		
	Before the event	**During the event**	**After the event**
Drought	• Veterinary preparedness • Assessment of resources • Integration with the district system • Plan for rapid mobilization of resources specially Silage. • Dry fodder (fodder bank), complete feed blocks (CFBs)	-Assure and mobilize water supply	- Impact assessment
Feed and fodder availability	As the district is occasionally prone to drought the following measures to be taken to ameliorate the fodder deficiency Avoid burning of wheat straw Establishment of fodder bank at village level with available dry fodder (wheat straw and stover of bajra/sorghum and also groundnut haulms) Increase area under perennial fodder cultivation with high yielding Hybrid Napier varieties. Conservation of maize/bajra/sorghum green fodder as silage Sowing of cereals (Sorghum/Bajra) and leguminous crops (Lucerne, Berseem, Horse gram, Cowpea) during early monsoon under dry land system for fodder production Encourage fodder production with Maize, Jowar, Bajra , Cowpea, Barseem, Lucerne etc.,	Harvest and use biomass of dried up crops (Groundnut, Wheat, Maize, Sorghum, Green gram etc.,) material as fodder Use of unconventional and locally available cheap feed ingredients especially groundnut cake and haulms as supplement for livestock during drought Utilizing fodder from fodder bank reserves. Utilizing stored silage/hay. Transporting complete feed/fodder and dry roughages to the affected areas. Concentrate ingredients such as Grains, brans, chunnies & oilseed cakes, low grade grains etc. unfit for human consumption should be procured from Govt. Godowns for feeding as supplement for high productive animals during drought Continuous supplementation of mineral mixture to prevent infertility. Encourage mixing available kitchen waste with dry fodder while feeding to the milch animals	Training/educating farmers for feed & fodder storage. Maintenance / repair of silo pits and feed/fodder stores. Encourage progressive farmers to grow multi cut fodder crops of sorghum/bajra/maize(UP chari, MP chari, HC-136, HD-2, GAINT BAJRA, L-74, K-677, Ananad/African Tall etc., Supply of quality fodder seed (multi cut sorghum/bajra/maize varieties) and fodder slips of Napier, guinea grass

	Processing & storage of feed/fodder and roughages in the form of complete feed/blocks.		well before monsoon Replenish the feed and fodder banks
Drinking water	Adopt various water conservation methods at village level to improve the ground water level for adequate water supply. Identification of water resources Desilting of ponds Rain water harvesting and create water bodies/watering points (when water is scarce use only as drinking water for animals) Construction of drinking water tanks in herding places/village junctions/relief camp locations Community drinking water trough can be arranged in shandies /community grazing areas	Adequate supply of drinking water. Restrict wallowing of animals in water bodies/resources Add alum in stagnated water bodies	Watershed management practices shall be promoted to conserve the rainwater. Bleach (0.1%) drinking water / water sources Provide clean drinking water
Health and disease management	Procure and stock emergency medicines and vaccines for important endemic diseases of the area All the stock must be immunized for endemic diseases of the area Vaccination for HS & FMD Surveillance and disease monitoring network to be established at Joint Director (Animal Husbandry) office in the district Adequate refreshment training on draught management to be given to VAS, Jr.VAS, LI with regard to health & management measures Procure and stock multivitamins & area specific	Carryout deworming to all animals entering into relief camps Identification and quarantine of sick animals Constitution of Rapid Action Veterinary Force Performing ring vaccination (8 km radius) in case of any outbreak Restricting movement of livestock in case of any epidemic Drainage of water from and around animal sheds, pasture areas. Tick control measures be undertaken to prevent tick borne diseases in animals	Keep close surveillance on disease outbreak. Undertake the vaccination depending on need Keep the animal houses clean and spray disinfectants Farmers should be advised to breed their milch animals during July-September so that the peak milk production does not coincide with mid summer

	mineral mixture	Rescue of sick and injured animals and their treatment Organize with community, daily lifting of dung from relief camps	
Floods	**Not applicable**		
Cyclone	**Not applicable**		
Cold wave	**Not applicable**		
Heat wave	Arrangement for protection from **heat wave** i) Plantation around the shed ii) H_2O sprinklers / foggers in the shed **iii)** Application of white reflector paint on the roof **iv)** Thatched sheds should be provided as a shelter to animal to minimize heat stress	Allow the animals early in the morning or late in the evening for grazing during heat waves Feed green fodder/silage / concentrates during day time and roughages / hay during night time in case of heat waves Put on the foggers / sprinkerlers/fans during heat weaves in case of high yielders (Jersey/HF crosses) In severe cases, vitamin 'C' and electrolytes should be added in H_2O during heat waves.	Feed the animals as per routine schedule Allow the animals for grazing (normal timings)
Insurance	Encouraging insurance of livestock	Listing out the details of the dead animals	Submission for insurance claim and availing insurance benefit Purchase of new productive animals

2.5.2 Poultry

2.5.3

	Suggested contingency measures			**Convergence/ linkages with ongoing programs, if**
	Before the event	**During the event**	**After the event**	

				any
Drought				
Shortage of feed ingredients	Buffer stock of readymade feed	Ensure sufficient water supply	Resumption of routine management	
Drinking water				
Health and disease management	Routine vaccination and medication should be followed	Attention should be paid towards general management	-----do----------	
Floods	Poultry requires excellence in general management in respect of litter management and bio- security			
Shortage of feed ingredients				
Drinking water				
Health and disease management				Culling of affected birds
Cyclone	In case of uncontrollable condition it is advisable to sell of the flock at the earliest			Resumption of routine management
Shortage of feed ingredients				
Drinking water				
Health and disease management				
Heat wave and cold wave		Adopting measures for maintaining the in house temperature at or near to physiological optimum temperature		
Shelter/environment management		Measures to maintain at or near physiological optimum temperature		
Health and disease management		Nutritional manipulation like use of fats/edible oil in the ration, extra supplementation of methionine, biotin, choline chloride and vitamin C etc.		Culling of affected birds

2.5.3 Fisheries/ Aquaculture

	Suggested contingency measures		
	Before the event[a]	**During the event**	**After the event**
1) Drought			
A. Capture			

Marine	Nil	Nil	
Inland	• Insure water storage & supply well in advance • Harvesting & marketing	• Watering of the ponds • Harvesting & marketing	• Restoking of the ponds • Fertilization & manuring of ponds
(i) Shallow water depth due to insufficient rains/inflow	• First to ensure the water supply to maintain minimum level of water for fishes in that particular period. If not possible then harvesting & marketing	• To maintain water level is the only option otherwise harvesting & marketing	• Regular operations for the remaining stock and also restoring of newone
(ii) Changes in water quality	• Oxygen depletion may lead to death of fishes • Ensure water supply or harvest the stock	• Harvesting & marketing • Emptying of pond	• Manuring, fertilization & rewatering • Establishment of new stock
(iii) Any other			
B. Aquaculture			
(i) Shallow water in ponds due to insufficient rains/inflow	• Water is only the major component or necessity for such operations • Ensure water supply or otherwise stoppage of the operation / culling temporary • Water managemental practices		
(ii) Impact of salt load build up in ponds / change in water quality	• Attempts to be made to minimize oxygen depletion from water and also for oxygenation of water	• Oxygenation of water • Stirring of water with pumps	• Re-establishment of normal managemental conditions
(iii) Any other	• Training and Awareness		
2) Floods			
A. Capture			
Marine	**-Not applicable**		
Inland			
(i) Average compensation paid due to loss of human life	• Fishing should be prohibited because of breeding season		
(ii) No. of boats / nets/damaged	• Insurance • Arrangement of boats, nets etc in surplus		
(iii) No. of houses damaged	• Co-ordination with the district administration & assurance to fisherman	• Rescue & Help • Programme in collaboration with district system	• Rehabilitation of fisherman for all their necessities
(iv) Loss of stock	• Training & Awareness	• Compensation	• Compensation
(v) Changes in water quality	• Preparation for checking the inflow of outside runoff water in to the pond runoff	• Arrangement of checking overflow of ponds	• Proper oxygenation • Maintenance of water pH

	water into the ponds	• Overflow of ponds • Net installations to capture the fishes going out due to overflow	
(vi) Health and diseases		• Water treatment to minimize ectoparasite infestation	
B. Aquaculture			
(i) Inundation with flood water			
(ii) Water contamination and changes in water quality			
(iii) Health and diseases			
(iv) Loss of stock and inputs (feed, chemicals etc)			
(v) Infrastructure damage (pumps, aerators, huts etc)			
(vi) Any other			
3. Cyclone / Tsunami			
A. Capture	Not applicable		
Marine	Not applicable		
(i) Average compensation paid due to loss of fishermen lives			
(ii) Avg. no. of boats / nets/damaged			
(iii) Avg. no. of houses damaged			
Inland			
B. Aquaculture			
(i) Overflow / flooding of ponds			
(ii) Changes in water quality (fresh water / brackish water ratio)			
(iii) Health and diseases			
(iv) Loss of stock and inputs (feed, chemicals etc)			
(v) Infrastructure damage (pumps, aerators, shelters/huts etc)			
(vi) Any other			

4. Heat wave and cold wave			
A. Capture			
Marine			
Inland			
B. Aquaculture			
(i) Changes in pond environment (water quality)			
(ii) Health and Disease management			
(iii) Any other			