

## State: CHHATTISGARH

### Agriculture Contingency Plan for District: Jashpur

<b>1.0 District Agriculture profile</b>				
<b>1.1</b>	<b>Agro-Climatic/Ecological Zone</b>			
	Agro Ecological Sub Region (ICAR)	Moderately To Gently Sloping ChattisgarhMahanadi Basin, Hot Moist/Dry Subhumid Transitional ESR With Deep Loamy To Clayey Red And Yellow Soils (11.0)		
	Agro-Climatic Zone (Planning Commission)	Eastern Plateau And Hills Region (VII)		
	Agro Climatic Zone (NARP)	North Hill Zone of Chattisgarh (MP-3)		
	List all the districts falling under the NARP Zone>(*>50% area falling in the zone)	Koriya, Bilaspur, Jashpur, Surguja, Raigarh, Anupur, Dindori, Mandla, Seoni		
	Geographic coordinates of district headquarters	Latitude	Longitude	Altitude
		22 <sup>0</sup> 53' N	84 <sup>0</sup> 12' E	771m.
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS	RMD,College of Agriculture and Research Station -Ambikapur(C.G.)		
	Mention the KVK located in the district with address	Jashpur- Patthalgaon		
Name and address of the nearest Agromet Field Unit (AMFU, IMD) for agro-advisories in the Zone	AMFU -RMD, College of Agriculture and Rsearch Station -Ambikapur			

<b>1.2</b>	<b>Rainfall</b>	<b>Normal RF(mm)</b>	<b>Normal Onset</b>	<b>Normal Cessation</b>
	SW monsoon (June-Sep)	1478	2 <sup>nd</sup> week of June	2 <sup>nd</sup> week of October
	NE Monsoon(Oct-Dec)	104	3 <sup>rd</sup> week of October	
	Winter (Jan- Feb)	58		
	Summer (Mar-May)	80		
	Annual	1721		

<b>1.3</b>	Land use pattern of the district	Geographical area (000 ha.)	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 ('000ha)	645.7	326.7	229.8	-	41.2	-	-	-	13.9	17.4

<b>1.4</b>	<b>Major Soils (common names like red sandy loam deep soils (etc.,))*</b>	<b>Area ('000 ha)</b>	<b>Percent (%) of total</b>
	1. Very shallow soils		
	2. Shallow soils		
	3. Slightly deep soils		
	4. Moderately deep soils		
	5. Deep soils		

<b>1.5</b>	<b>Agricultural land use</b>	<b>Area ('000 ha)</b>	<b>Cropping intensity %</b>
	Net sown area	267.2	122
	Area sown more than once	59.5	
	Gross cropped area	326.8	

<b>Irrigation</b>	<b>Area ('000 ha)</b>	<b>Percent(%)</b>	
Net irrigated area	10.9	4.08	
Gross irrigated area	36.9	11.3	
Rainfed area	267.3	81.8	
<b>Sources of irrigation</b>	<b>Number</b>	<b>Area ('000 ha)</b>	<b>Percentage of total irrigated area</b>
Canals		8.1	
Tanks		12.2	
Open wells		8.5	
Bore wells		10.9	
Lift irrigation schemes			
Micro-irrigation			
Other sources (please specify)		23.5	
Total irrigated area		63380	9%

Pump sets			
No. Of tractors			
<b>Groundwater availability and use* (data source: state/central ground water department /board)</b>	<b>No. of blocks/ tehsils</b>	<b>(%) area</b>	<b>Quality of water (specify the problem such as high levels of arsenic, fluoride, saline etc)</b>
Over exploited			
Critical			
Semi- critical			
Safe			
Wastewater availability and use			
Ground water quality			
*over-exploited: groundwater Sesameization > 100%; critical: 90-100%; semi-critical: 70-90%; safe: <70%			

### 1.7 Area under major field crops & horticulture

1.7	Major field crops cultivated	Area ('000 ha)							
		<i>Kharif</i>			<i>Rabi</i>			Summer	Grand total
		Irrigated	Rainfed	Total	Irrigated	Rainfed	Total		
Rice		177	177					177	
Maize		9	9					9	
Pigeonpea		9	9					9	
Blackgram		26.5	26.5					26.5	
Sesame		0.7	0.7					0.70	
Niger		23.7	23.7					23.7	
Groundnut		12	12					12	
Sugarcane	0.07	0.07	0.14					0.14	
Wheat				3.5		3.5		3.5	
Pea						4.6		4.6	
Toria						9.5		9.5	
Linseed						3.5		3.5	
Chickpea						7.2		7.2	
Sarson						4		4	

	Horticulture crops - Fruits	Area ('000 ha)		
		Total	Irrigated	Rainfed
	Mango	3.1		3.1
	Banana	0.2		0.2
	Papaya	0.09		0.09
	Jack fruit	0.4		0.4
	Litchi	0.8		0.8
	Pear	0.1		0.1
	Others	0.5		0.5
	<b>Horticulture crops - Vegetables</b>	<b>Total</b>	<b>Irrigated</b>	<b>Rainfed</b>
	Cauliflower	0.23		0.23

Cabbage	0.27		0.27
Brinjal	0.45		0.45
Tomato	4.04		4.04
Potato	2.59		2.59
Bitter guord	0.29		0.29
<b>Medicinal and Aromatic crops</b>	<b>Total</b>	<b>Irrigated</b>	<b>Rainfed</b>
E.Citridora	50		50
<b>Plantation crops</b>			
<b>Fodder crops</b>			
<b>Total fodder crop area</b>			
<b>Grazing land</b>			
<b>Sericulture etc</b>			

<b>1.8</b>	<b>Livestock</b>	<b>Male ('000)</b>	<b>Female ('000)</b>	<b>Total ('000)</b>
	Non descriptive Cattle (local low yielding)	284190	418346	702536
	Improved cattle			
	Crossbred cattle	1347	4321	5668
	Non descriptive Buffaloes (local low yielding)			39647
	Descript Buffaloes	22929	40633	63562
	Goat	85511	191540	277051
	Sheep	5630	6437	12067
	Others (Camel, Pig, Yak etc.)			
	Commercial dairy farms (Number)			
	<b>Poultry</b>	<b>No. of farms</b>	<b>Total No. of birds ('000)</b>	
	Commercial	3	23900	
	Backyard			

<b>Fisheries</b> (Data source: Chief Planning Officer)				
<b>A. Capture</b>				
<b>i) Marine</b> (Data Source: Fisheries)	<b>No. of fishermen</b>	<b>Boats</b>	<b>Nets</b>	<b>Storage</b>

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

### 1.11 Production and Productivity of major crops

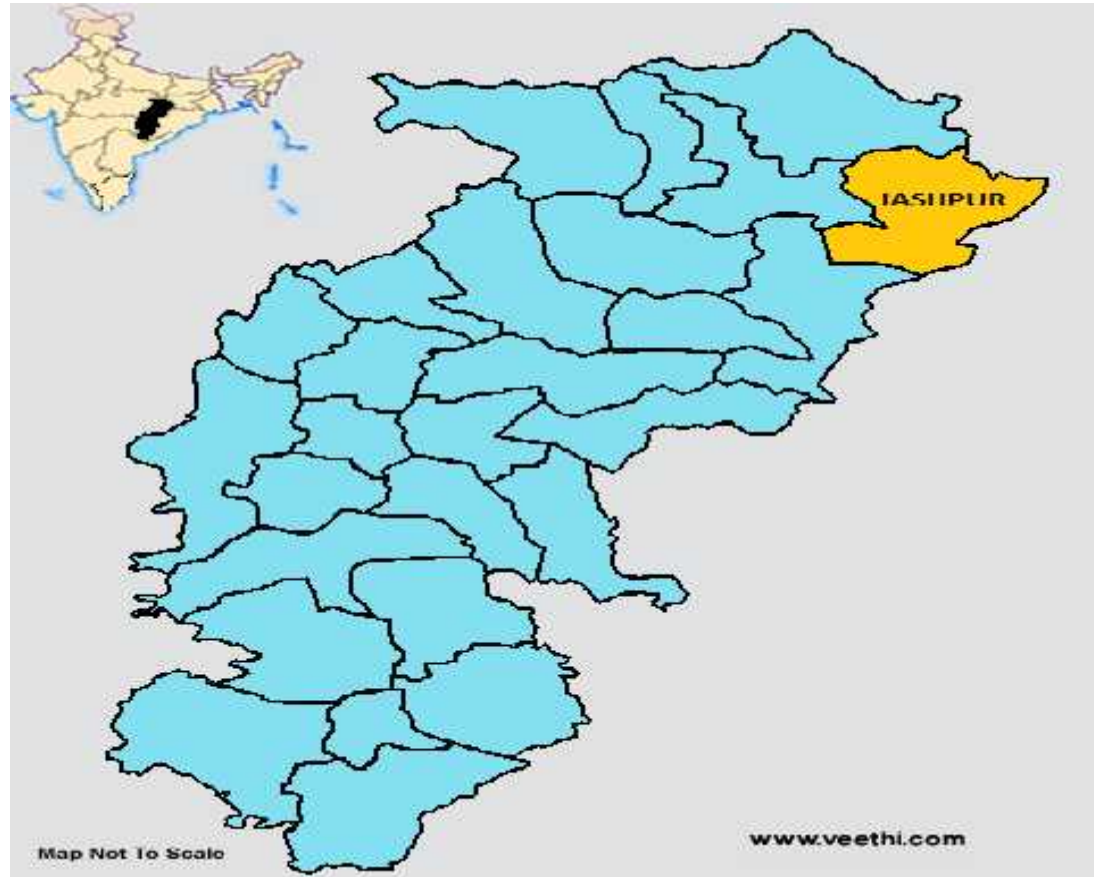
1.11	Name of crop	Kharif		Rabi		Summer		Total		Crop residue as fodder ('000 tons)
		Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	
<b>Major Field crops (Crops identified based on total acreage)</b>										
	Rice	280.9	1602					280.9	1602	
	Maize	13.5	1530					13.5	1530	
	Pigeonpea	4.6	554					4.6	554	
	Blackgram	20.3	785					20.3	785	
	Sesame	0.07	264					0.07	264	
	Niger	7.1	296					7.1	296	
	Groundnut	18.1	1466					18.1	1466	
	Sugarcane	0.3	4200					0.3	4200	
	Wheat			2827.5	16.9			2827.5	16.9	
	Pea			592	667			592	667	
	Toria			374	374			374	374	
	Linseed			267	267			267	267	

1.12	Sowing window for 5 major field crops (start and end of normal sowing period)	Rice	Ground nut	Miner millets	Niger / Finger millet	Tomato
	Kharif- Rainfed	4 <sup>th</sup> week of June to 2 <sup>nd</sup> week of July	4 <sup>th</sup> week of June to 2 <sup>nd</sup> week of July	4 <sup>th</sup> week of June to 3 <sup>rd</sup> week of July		
	Kharif-Irrigated					
	Rabi- Rainfed				4 <sup>th</sup> week of June to 2 <sup>nd</sup> week of July	3 <sup>rd</sup> week of October to 2 <sup>nd</sup> week of November
	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			

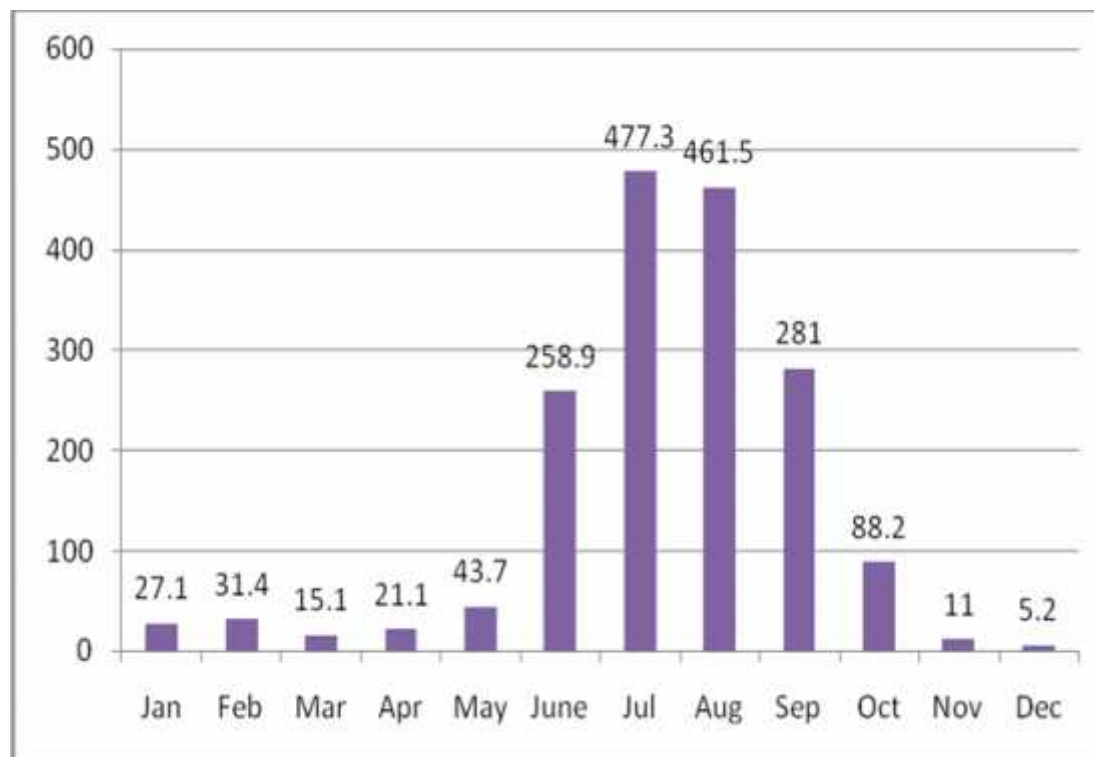
1.14	Include Digital maps of the district for	Location map of district within State as Annexure I	Enclosed: Yes
		Mean annual rainfall as Annexure 2	Enclosed: Yes
		Soil map as Annexure 3	Enclosed: Yes

Annexure I

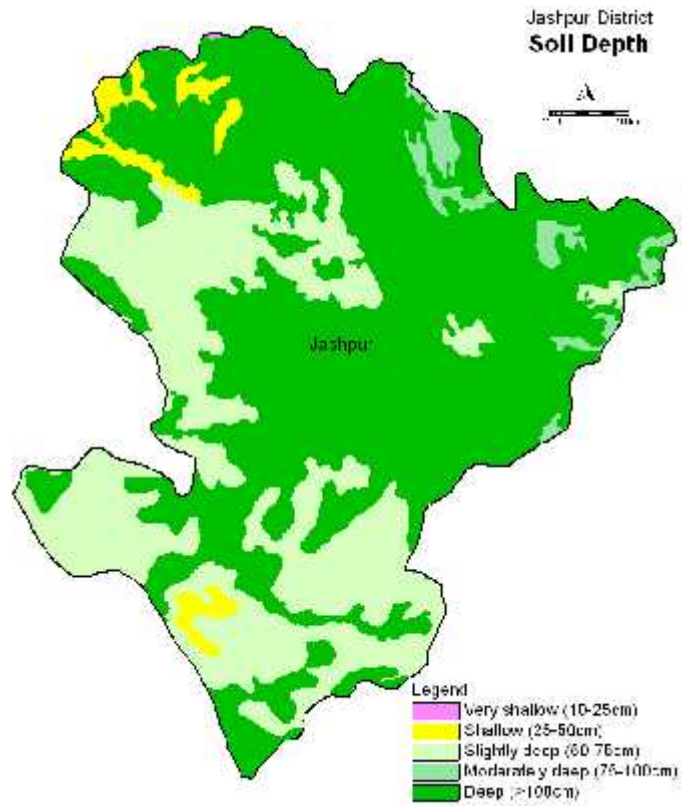




**Annexure II**  
**Mean annual rainfall (mm)**



### Annexure III



## 2.0 Strategies for weather related contingencies

### 2.1 Drought

#### 2.1.1 Rainfed situation

Early season drought (delayed onset)	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Delayed by 2 weeks  June 4 <sup>th</sup> week	Upland shallow red soils	Rice-Fallow	<b>Rice</b> -Tulsi, Aditya, Kalinga3, Samleswari,Vandana, Vanprabha,	Line sowing of rice with recommended dose of fertilizer	
		Minor millets-Fallow	<b>Fingermillet</b> - KM68, VL148, KM-68,VI-48, JPU28, <b>Kutki</b> -JK-8,BK-1, <b>Kodo</b> - JPUK-3,JK-41,JK-48	Seedling transplanting Or Dry sowing of finger millets with recommended dose of fertilizer	
		<b>Maize</b> -Pro-6444,DHM117117,PMH-3PRO-4640,BIO-9681, PRO-4212, DHM-117, PMH-3 PIO30-R26	Line sowing with chemical weed control by Atrazine @3gm./liter at Pre emergence		
Pigeonpea-Fallow		<b>Pigeonpea</b> -UPAS120,TAG10, Asha, Rajivlochan, ICPL151, ICPL-87	Line sowing with recommended dose of fertilizer & Seed Inoculation with Rhizobium culture		
Groundnut-Fallow		<b>G.Nut</b> -SB-11, JL-24, ICGS-11, ICGS-34, ICGS-43			
Blackgram-Fallow		<b>Blackgram</b> - Pant u-30, Barkha, KU-2, TPU-2,TPU-4			
Fallow- Horsegram / Niger /		<b>Sesame</b> -selection-5,TC-25,JT-21 <b>Niger</b> -IGP-76,GA-10,JNS-1,JNS-6 <b>Horsegram</b> - K42,Birsa Finger millet-1, Bk-1, AK-21, JND-2	Timely sowing of Niger & Horse gram		
	Mid land Yellow Red soil	Rice-Fallow	<b>Rice</b> -MTU-1010,PA-6444,PHB-71,KRH-1,Indirasona,Mahamaya, Danteswari,Karma masuri, Bambleswari	Use 15-20 days old seedling for transplanting Apply 15-20 kg ZnSo4 before planting or sowing	
	Lowland Yellow soil	Rice-Fallow Rice-Linseed/Pea	<b>Rice</b> -Sawarna, Sawarna, sub-1Mahamaya,DanteswariPA-	Apply recommended dose of Fertilizer	

			6444,PHB-71,KRH-1,Indira sona <b>Linseed-</b> R552,kiran,shital		
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Early season drought (delayed onset)	Major Farming situation	Normal Crop/cropping system	Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Delayed by 4 week  July 2 <sup>nd</sup> week	Upland shallow red soils	Rice-Fallow	<b>Rice</b> -Tulsi,Aditya,Kalinga3,Samleswari, Vandana, Vanprabha,	Line sowing of rice with recommended dose of fertilizer	1).Seed drills is being provide under RKVY  2) Rhizobium culture Supply under RKVY  3) Supply of Seed through Seed corporation/ Agril Department
		Minor millets-Fallow	<b>Fingermillet</b> ,-KM-68,VL148,KM-68,vl-48, JPU28, <b>Kutki</b> -JK-8,BK-1 <b>Kodo</b> - JPUK-3,JK-41,JK-48	Transplanting of Finger millets or Dry sowing 8-10 days before rains	
			<b>Maize</b> -Pro-6444,DHM117117,PMH-3 PRO-4640,BIO-9681,PRO-4212,DHM-117,PMH-3 PIO30-R26	Line sowing with chemical weed control by Atrazine @3gm./liter at Pre emergence	
		Pigeonpea-Fallow	<b>Pigeonpea</b> UPAS-120,TAG-10,Asha,Rajivlochan,ICPL151,ICPL-87	Line sowing & seed Inoculate with Rhizobium culture	
		Groundnut-Fallow	<b>G.nut</b> -SB-11, JL-24, ICGS-11, ICGS-34, ICGS-43		
		Blackgram-Fallow	<b>Blackgram</b> - Pant U-30, Barkha, KU-2, TPU-2, TPU-4		
		Fallow- Horsegram / Niger /	<b>Sesame</b> -Selection-5,TC-25, JT-21 <b>Niger</b> -IGP-76,GA-10, JNS-1, JNS-6 <b>Horsegram</b> - K42, Birsa Finger millet-1, pk-1	Timely sowing in Niger & Finger millet	
	Midland	Rice-Fallow	<b>Rice</b> -MTU-1010,PA-6444,PHB-71,KRH-1,Indirasona,Mahamaya,Danteswari,Kar ma masuri,Bambleswari	6) Sowing of sprouted rice seed under lehi condition. 7) Sowing of medium duration variety . 8) Proper water management . 9) Apply 15-20 kg ZnSo4 before planting or sowing. 10) Improved Biasi in direct seeded rice .	
Low land	Rice-Fallow Rice-Linseed/Pea	<b>Rice</b> -Sawarna, Sawarna, sub-1Mahamaya,Danteswari,PA-6444,PHB-71,KRH-1,Indira sona <b>Linseed-</b> R552,kiran,shital			

Early season drought (delayed onset)	Major Farming situation <sup>a</sup>	Normal Crop/cropping system <sup>b</sup>	Change in crop/cropping system <sup>c</sup>	Agronomic measures <sup>d</sup>	Remarks on Implementation <sup>e</sup>
Delay by 6 weeks  July 4 <sup>th</sup> week	Upland shallow red soils	Rice-Fallow	<b>Pigeonpea</b> --UPAS-120,TAG-10,Asha,Rajivlochan,ICPL151,ICPL-87 <b>Blackgram</b> - JU-2,JU-3,PDU-1,TAU-2,TU-94-2	1) Proper Spacing with recommended dose of Fertilizer. 2) Seed inoculate with Rhizobium culture 3)Timley & line sowing in Niger & Finger millet	1).Seed drills is being provide under RKVY 2) Rhizobium culture Supply under RKVY  3) supply of Seed through Seed corporation/ ,Agril Department
		Minor millets-Fallow			
		Pigeonpea-Fallow			
		Maize-Fallow	<b>Niger</b> -IGP-76,GA-10,JNS-1,JNS-6 <b>Horsegram</b> - K-42,Birsa Finger millet-1, PK-1 <b>Sesame</b> -Selection-5,TC-25, JT-21		
	Groundnut-Fallow				
Midland Yellow Red soil	Rice-Fallow, Rice-Wheat	<b>Rice</b> -MTU-1010, PA-6444, PHB-71, KRH-1,Indira sona, Mahamaya,Danteswari, Karma masuri,Bambleswari	4) Sowing of sprouted rice seed under lehi condition. 5) Sowing of Medium duration variety with 25% higher seed rate		
Low land Yellow soil	Rice-Fallow, Rice-Linseed	<b>Rice</b> -Sawarna, Sawarna, sub-1Mahamaya,DanteswariPA-6444,PHB-71,KRH-1,Indira sona <b>Linseed</b> - R552,kiran,shital	6) Proper water management 7) Apply 15-20 kg ZnSo4 before planting or sowing		

Early season drought (delayed onset)	Major Farming situation <sup>a</sup>	Normal Crop/cropping system <sup>b</sup>	Change in crop/cropping system <sup>c</sup>	Agronomic measures <sup>d</sup>	Remarks on Implementation <sup>e</sup>
Delayed by 8 weeks  August 2 <sup>nd</sup> week	Upland shallow red soils	Rice-Fallow	<b>Sesame</b> -Selection-5,TC-25,JT-21 <b>Niger</b> -IGP-76,GA-10,JNS-1,JNS-6 <b>Horsegram</b> - K42, Birsa Finger millet-1, pk-1	1)Line sowing , weed management 2. urd seed inoculate with Rhizobium culture  3)Timley & line sowing in Niger & Finger millet	1).Seed drills is being provide under RKVY 2) Rhizobium culture Supply under RKVY  3) Supply of Seed through Seed corporation/ Agril Department
		Minor millets-Fallow			
		Pigeonpea-Fallow			
		Maize-Fallow			
		Groundnut-Fallow			
	Fallow- Horsegram / Niger				
Midland	<b>Rice</b> -Fallow Rice-Wheat	<b>Linseed</b> - R552,Kiran,Shital <b>Lathyrus</b> - Ratan ,Paratik <b>Lentil</b> - JL-3, K-75 ,IPL-81,DL-62			
Low land	Rice-Fallow , Rice-Linseed				

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Crop management	Soil nutrient & moisture conservation measues	Remarks on Implementation
Early season drought (Normal onset)					
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc.	Upland shallow red soils	Rice-Fallow	*Thinning and gap filling the existing crops *Re-Sowing	1) Interculture Operation 2) Life saving irrigation 3) In situ Soil water conservation measure	1) Supply of inter cultural implements under RKVY  2) Seed supply through State seed corporation Under RKVY
		Minor millets-Fallow			
		Pigeonpea -Fallow			
		Blackgram-Fallow			
		Groundnut -Fallow			
	Fallow- Horsegram/ Niger/Toria				
Midland	Rice-Fallow, Rice-Wheat	Gap filling or re-sowing in direct sown transplanting of rice	1) life saving irrigation 2) In situ Soil water conservation measure		
Low land	Rice-Fallow, Rice-Lathyrus/ Linseed/Lentil	Sprouted seed should be sown if nursery is not available			

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Crop management	Soil nutrient & moisture conservation measues	Remarks on Implementation
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period)					
At vegetative stage	Upland shallow red soils	Rice-Fallow	1. Thining,  2. postponment of top dressing of fertilizer. 2) Life saving irrigation 3) Protection against disease and pest.	1) Weeding thining 2) Life saving irrigation 3) Opening of conservation furrows	1) Supply of Inter cultural Implements through RKVY  2) Farm pond through IWSM programme
		Minor millets-Fallow			
		Pigeonpea -Fallow			
		Blackgram-Fallow			
		Fallow- Horsegram/ Niger/Toria			
	Groundnut -Fallow				
Midland	Rice-Fallow Rice-wheat	1) Proper water management. 2) Life saving irrigation	1) Spray 2% urea in Rice . 2) Proper Water		

	Low land	Rice-Fallow Rice-Linseed/ Lathyrus/ Lentil	3) Protection against disease and pest.	management.	
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Mid season drought (long dry spell)	Major Farming situation	Normal Crop/cropping system	Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
At flowering/ fruiting stage	Upland shallow red soils	Rice-Fallow	1) Give Life saving irrigation 2) Weeding and Weed mulching 3) Life saving irrigation 4) weeding and weed mulching 5) Could be harvested for fodder pupose		
		Pigeonpea -Fallow			
		Blackgram-Fallow			
		Fallow- Horsegram/Niger/ Toria			
	Groundnut -Fallow				
Midland	Rice-Fallow Rice-Wheat/Pea/				
Low land	Rice-Fallow Rice-Linseed				

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
Terminal drought (Early withdrawal of monsoon)	Major Farming situation	Normal Crop/cropping system	Crop management	Rabi Crop planning	Remarks on Implementation
	Upland shallow red soils	Rice-Fallow	1) Give Life saving irrigation if facility available 2) Harvested at physiological maturity stage 3) Harvest at fodder purpose	1) Make a plan for sowing of Niger , Horsegram	
		Pigeonpea -Fallow			
		Blackgram-Fallow			
		Fallow-Horse gram/Niger/ Toriya			
	Groundnut -Fallow				
Midland Yellow Red soil	Rice-Fallow/Rice-Wheat	Life saving irrigation if facility available	1) Make plan for Utera cultivation of linseed, Lathyrus, lentil and Sesame		
Low land Yellow soil	Rice-Linseed/Lathyrus/Pea /Lentil				

## 2.1.2 Drought - 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	Low land tube well, canal irrigated soils	Rice (low land Condition)	Aerobic Rice <b>Wheat</b> , - GW-273,GW173,DL-788-2,C-306 <b>Mustard</b> -Varun,Pusa bold, varun,wardan,Krishna <b>Chickpea</b> -JG-74,JG-315,vaibhav	1) Rice transplanting by SRI system 2) Alternate Furrow irrigation	1)Seed supply through State seed corporation Under RKVY

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	Low land tube well, canal irrigated soils	Rice-Rice	Aerobic Rice <b>Wheat</b> , - GW-273,GW173,DL-788-2,C-306 <b>Mustard</b> - Varun,Pusa bold, varun, vardan,Krishna <b>Chickpea</b> --JG-74,JG-315,vaibhav	1) Rice transplanting by SRI system	1)Seed supply through State seed corporation Under RKVY

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Non release of water in canals under delayed onset of monsoon in catchment	Low land tube well, canal irrigated soils	Rice-Rice	Aerobic Rice Wheat,- GW-273,GW173,DL-788-2,C-306 <b>Mustard</b> - Varun,Pusa bold, varun,wardan,Krishna <b>Chickpea</b> -JG-74,JG-315,vaibhav	Alternate furrow Irrigation  Irrigate the crops by sprikler	1)Seed supply through State seed corporation Under RKVY



Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Lack of inflows into tanks due to insufficient /delayed onset of monsoon	Low land tube well, canal irrigated soils	Rice-Wheat	<b>Aerobic Rice</b> Wheat,- GW-273,GW173,DL-788-2,C-306 <b>Mustard</b> -Varun,Pusa bold, varun,wardan,Krishna <b>Chickpea</b> : JG-74,JG-315,vaibhav	Alternate furrow Irrigation 3) Drip Irrigation	1)Seed supply through State seed corporation Under RKVY

Condition	Major Farming situation	Normal Crop/cropping system	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Insufficient groundwater recharge due to low rainfall	Low land tube well, canal irrigated soils	Rice-Wheat	<b>Wheat</b> ,- GW-273,GW173,DL-788-2,C-306 <b>Mustard</b> -Varun,Pusa bold, varun,wardan,Krishna <b>Chickpea</b> -JG-74,JG-315,vaibhav	1) Alternate Furrow irrigation 2) irrigate crops at critical stages	1)Seed supply through State seed corporation Under RKVY

**2.2 Unusual rains (untimely, unseasonal etc)** (for both rainfed and irrigated situations)

Condition	Suggested contingency measure			
	Vegetative stage	Flowering stage	Crop maturity stage	Post harvest
<b>Continuous high rainfall in a short span leading to water logging</b>				
Pigeon pea	Provide Drainage Need based plant protection IPDM for pulses	Provide Drainage	Drain out excess water , Harvesting at Physiological maturity stage	Shift to safer place Safe storage against pest and disease
Groundnut	Provide Drainage Need based plant protection IPDM for pulses	Provide Drainage	Drain out excess water , Harvesting at Physiological maturity stage	Shift to safer place, dry in shade and turn frequently Safe storage against pest and disease
Blackgram	Provide Drainage Need based plant protection IPDM for pulses	Provide Drainage	Drain out excess water , Harvesting at Physiological maturity stage	Shift to safer place, Dry in shade and turn frequently
Wheat	Provide Drainage	Provide Drainage	Drain out excess water	Shift to safer place, dry in shade and turn frequently
Rice			Harvesting at Physiological maturity stage	Shift to safer place,
Heavy rainfall with high speed winds in a short span <sup>2</sup>				
Outbreak of pests and diseases due to unseasonal rains				

### 2.3 Floods:

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

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

Extreme event type	Suggested contingency measure <sup>r</sup>			
	Seedling / nursery stage	Vegetative stage	Reproductive stage	At harvest
Heat wave	Not Applicable			
Cold wave	Not Applicable			
Frost				
Potato and Tomato		Need based plant protection Integrated pest and disease management for Potato	Need based plant protection IPDM for Potato Irrigate the crops to protect from Frost	
Hailstorm	Not Applicable			
Cyclone	Not Applicable			

### 2.5 Contingent strategies for Livestock, Poultry & Fisheries

#### 2.5.1 Livestock

	Suggested contingency measures		
	Before the event <sup>s</sup>	During the event	After the event
<b>Drought</b>			
Feed and fodder availability	Preservation of surplus fodder ,encourage fodder cultivation and tree plantation and also encourage supply of	Arrangement of feed and fodder from adjoining areas ,exploration of non conventional feed resources ,use	Promotion of fodder seed production cultivation and storage establishment of fodder blocks

	molasses to cattle feed plant.	of urea treated straw and feed blocks.	
Drinking water	Preserving water in the tank for drinking purpose Excavation of bore wells	Harvesting water through the existing reservoirs and exploration of ground water.	To strengthen reservoirs by promoting recharging of water and rain water harvesting during rainy season
Health and disease management	Mass vaccination and De-worming	Provide shade to animals and water as much as possible .Treatment of diseased animal and proper disposal of carcasses	Treatment of diseased animal and provide vitamin and minerals supplement to regain strength and vigor
<b>Floods</b>			
Feed and fodder availability	Conservation of the fodder in the form of hay and silage	Feeding of feed blocks and silages	Provide treated feed and fodder to animals against moulds and fungi.
Drinking water	Regular inspection of Pons and canals for any Obstruction .	Provide drinking water in small through and plastic bucket.	Disinfection of contaminated water specially for drinking purpose.
Health and disease management	Storage of Medicines .	Treatment of injured animals	Disposal of dead animals.
<b>Cyclone</b>	Not applicable		
<b>Heat wave and cold wave</b>			
Shelter/environment management	Construction of wind break , Shed should have sufficient over hangs ,fixing of sprinklers ,provide thatch on roof .	Construct shelter to keep animals under shade during hot/cold day, to & provide paddy straw during cold & cooling fans and shades during hot wave	
Health and disease management		Reduce energy content and increase protein content in feed, add anti stress factors, provide cool drinking water. Increase energy content in food	

<sup>s</sup> based on forewarning wherever available

## 2.5.2

## Poultry

	Suggested contingency measures			Convergence/linkages with ongoing programs, if any
	Before the event <sup>a</sup>	During the event	After the event	
<b>Drought</b>				
Shortage of feed ingredients	Storage of feed	Provide non conventional feed, supplement anti oxidant and anti stress		
Drinking water	Storage of water in tanks	Add vit-C and other anti stress ingredient with water		
Health and disease management	Regular vaccination	Use pellet feeding		
<b>Floods</b>				
Shortage of feed ingredients	Storage of feed in safe storage bins to avoid mould and fungi	Use pellet feeding		
Drinking water	Safe storage of water in tanks	Provide treated water		
Health and disease management	Regular vaccination	Vaccination and treatment of diseased one, proper litter management and addition of lime as per need.	Disposal of dead birds	
<b>Cyclone</b>	Not applicable			
<b>Heat wave and cold wave</b>				
Shelter/environment management	Construction of wind breaks, poultry shed should have sufficient over hangs fixing of sprinklers on the roofs, provide thatch on the roof, decrease stocking density, decrease litter depth .Construction of wind breaks, keep curtains ready, arrange for heating devices, increase stocking density, decrease litter depth.	Provide cooling fans in shades and also sprinkle water on the roof at regular intervals. Use of wind breaks, put gunny bags on all openings of shed , use heating devices.		
Health and disease management	Routine health care	Reduce energy content and increase protein content in feed, add anti stress factors, provide cool drinking water. Increase energy content in food		

<sup>a</sup> based on forewarning wherever available

## 2.5.3

## Fisheries/ Aquaculture

	Suggested contingency measures		
	Before the event <sup>a</sup>	During the event	After the event
<b>1) Drought</b>			
<b>A. Capture</b>			
Marine			
Inland			
(i) Shallow water depth due to insufficient rains/inflow	<ol style="list-style-type: none"> <li>1. Harvest all the large fish except the brood stock.</li> <li>2. Move other fish into pens or small confined waters.</li> <li>3. Provision for Rainwater harvesting</li> <li>4. Deepening/Desilting of existing</li> </ol>	<ol style="list-style-type: none"> <li>1. Harvest all the fish.</li> <li>2. Stock water bodies with desirable species for culture.</li> <li>3. Shallow derelict waters can stocked with stunted fish seed for culture.</li> <li>4. Pens of 0.2 to 0.5 ha may facilitate easy operation of culture.</li> </ol>	<ol style="list-style-type: none"> <li>1. Stocking and management of growth of stock grow out water bodies to improve</li> </ol>
(ii) Changes in water quality	<ol style="list-style-type: none"> <li>1. Monitor water quality</li> <li>2. Avoid polluting materials entry into water body.</li> </ol>	<ol style="list-style-type: none"> <li>1. Monitor water quality as small water bodies have less tolerance to environmental changes leading to algal blooms and fish mortality.</li> </ol>	<ol style="list-style-type: none"> <li>1. Advent of monsoon will mitigate the water shortage and normal stocking and culture practice may be adopted.</li> </ol>
<b>B. Aquaculture</b>			
(i) Shallow water in ponds due to insufficient rains/inflow	<ol style="list-style-type: none"> <li>1. Harvest all the large fish except the brood stock.</li> <li>2. Move other fish into pens or small confined waters with at least one meter depth.</li> <li>3. Go for low stocking density.</li> <li>4. Provision for Rainwater harvesting</li> <li>5. Deepening/Desilting of existing water bodies.</li> <li>6. Removal of debris and compaction of pond bunds.</li> </ol>	<ol style="list-style-type: none"> <li>1. Harvest all the fish.</li> <li>2. Stock ponds with desirable species for culture.</li> <li>3. Transfer the brood stock to deep water ponds if the existing ponds cannot be filled with bore well water.</li> <li>5. Start breeding if sufficient bore well water is available.</li> <li>6. Start pond preparations, like De weeding, desilting &amp; repair of dykes.</li> </ol>	<ol style="list-style-type: none"> <li>1. Start breeding operation with full preparations.</li> <li>2. Undertake nursery and rearing operations.</li> <li>3. Stocking and management of grow out ponds to improve growth of stock.</li> </ol>

(ii) Impact of salt load build up in ponds / change in water quality	1. Add bore well water and if available, canal-water	1. Add bore well/ canal water if available or else harvest the stock. 2. Implement standard water conservation management practices	1. Exchange pond water with fresh surface runoff water.
<b>2. Floods</b>			
<b>3. Cyclone / Tsunami</b>	Not applicable		
<b>4. Heat wave and cold wave</b>			
<b>A. Capture</b>			
Marine			
Inland		1. Harvest the stock.	1. Stock with fingerlings with the advent of rains.
<b>B. Aquaculture</b>			
(i) Changes in pond environment (water quality)		1. Add bore well water and if available, canal-water.	1. Exchange pond water with fresh surface runoff water
(ii) Health and Disease management		1. Provide shelter (weeds) in a small area of the pond to prevent sun burn	1. Remove weeds. 2. Liming or bleaching powder need to be added.

<sup>a</sup> based on forewarning wherever available