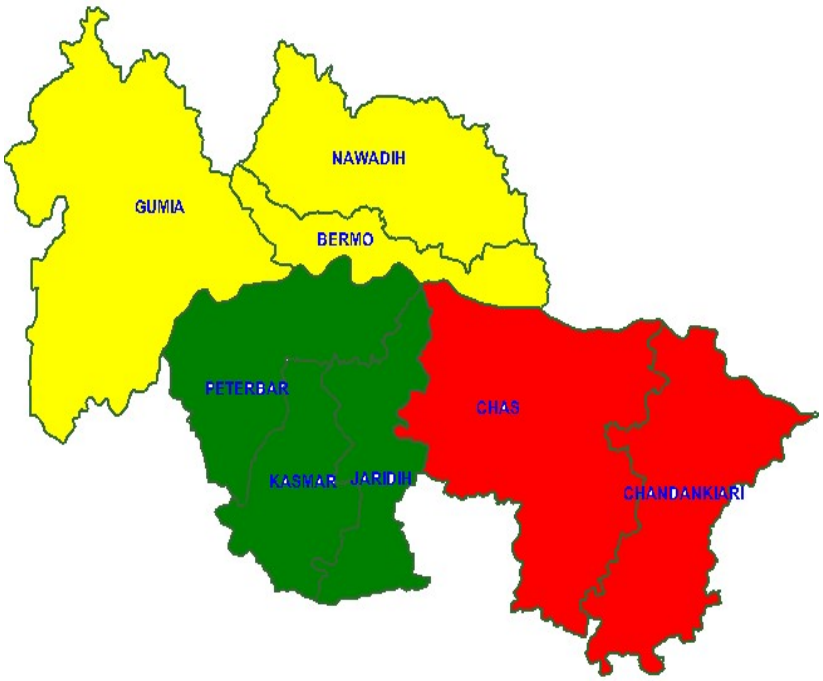
KRISHI VIGYAN KENDRA, BOKARO

Petarwar- 829121

CONTINGENT AGRICULTURE PLAN

FOR

DISTRICT BOKARO



Birsa Agricultural University

Ranchi

State: Jharkhand

Agriculture Contingency Plan for District: Bokaro

1.0 District Agriculture profile				
1.1	**Agro-Climatic/Ecological Zone**			
	Agro Ecological Sub Region (ICAR)	Central North Eastern Plateau		
	Agro-Climatic Zone (Planning Commission)	IV		
	Agro Climatic Zone (NARP)			
	List all the districts falling under the NARP Zone* (*>50% area falling in the zone)			
	Geographic coordinates of district headquarters	**Latitude**	**Longitude**	**Altitude**
		23.29^0	**86.09^0**	**210^0**
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS	Zonal Research Station (ZRS), Dumka, Birsa Agricultural University, Ranchi		
	Mention the KVK located in the district with address	Krishi Vigyan Kendra Bokaro, P.O- Petarwar, Dist- Bokaro, State- Jharkhand, Pin-829121		
	Name and address of the nearest Agromet Field Unit (AMFU, IMD) for agro-advisories in the Zone	**Birsa Agricultural University, Ranchi**		

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):	851.8	52		
	NE Monsoon(Oct-Dec):	107.2	10		
	Winter (Jan- March)			-	-
	Summer (Apr-May)	74.8	6	-	-
	Annual			-	-

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)	288.97	86.9	72.23	59.632	5.303	15.882		25.01	47.112	

1. 4	Major Soils (common names like red sandy loam deep soils (etc.,)*	Area ('000 ha)	Percent (%) of total
	1. Red lateritic (Ultic Paleustalfs)	525	18.35
	2. Loam soil (Haplustalfs)	137	4.79
	3. Fine Loam (Rhodustlafs)	110	3.84
	4. Fine mixed Loam (Paleustalfs)	200	6.99
	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	15.81	163%
	Area sown more than once		
	Gross cropped area	25.84	

1.6	Irrigation	Area ('000 ha)		
	Net irrigated area	0.90		
	Gross irrigated area	8.69		
	Rainfed area			
	Sources of Irrigation	Number	Area ('000 ha)	Percentage of total irrigated area
	Canals	2	1.765	
	Tanks	262	3.260	
	Open wells	2542	2.156	

	Bore wells			
	Lift irrigation schemes			
	Micro-irrigation	34	0.382	
	Other sources (Check Dam)	129	1.442	
	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 _____ eg., 2008-09)

Sl.No.	Major field crops cultivated	Area ('000 ha)							
		Kharif			*Rabi*				
		Irrigated	Rainfed	Total	Irrigated	Rainfed	Total	Summer	Grand total
1	Paddy			30.276					
2	Maize			6.865			0.301		
3	Arhar			3.177					
4	Urd			0.627					
5	Moong			0.462					
6	Groundnut			0.166					
7	Wheat						1.883		
8.	Chick pea						2.860		
9	Pea						0.620		
10	Lentil						0.053		
11	Mustard						1.540		

S.No.	Horticulture crops - Fruits	Area ('000 ha)		
		Total	Irrigated	Rainfed
1				
2				
3				
4				
5				
Others (specify)				
	Horticulture crops - Vegetables	**Total**	**Irrigated**	**Rainfed**
1	Cauliflower	1.303		

2	Cabbage	1.097		
3	Tomato	1.011		
4	Brinjal	0.497		
5	Chilli	0.060		
6	L. Finger	0.360		
7	Bottle gourd	0.480		
8	Bitter gourd	0.605		
9	Cucumber	0.120		
10	Ridge gourd	0.284		
11	Sponge gourd	0.480		
12	Frenchbean	0.147		
Others (specify)				
	Medicinal and Aromatic crops	**Total**	**Irrigated**	**Rainfed**
1				
2				
3				
4				
5				
Others (specify)				
	Plantation crops	**Total**	**Irrigated**	**Rainfed**
1				
2				
3				
4				
5				
Others (Specify)	Eg., industrial pulpwood crops etc.			
	Fodder crops	**Total**	**Irrigated**	**Rainfed**
1				
2				
3				
4				
5				
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)			663.85
	Improved cattle			
	Crossbred cattle			
	Non descriptive Buffaloes (local low			

	yielding)			
	Descript Buffaloes			91.63
	Goat			342.177
	Sheep			48.232
	Others (Camel, Pig, Yak etc.)			781.998
	Duckery			20.034
	Commercial dairy farms (Number)			
1.9	**Poultry**	**No. of farms**	**Total No. of birds ('000)**	
	Commercial			
	Backyard		578.873	

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)**
	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**	
		Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	
Major Field crops (Crops to be identified based on total acreage)										

Crop 1	Paddy	46.696	1542.34					46.696	1542.34	
Crop 2	Maize	11.289	1644.42	0.534	1774.08			11.823	3418.5	
Crop 3	Arhar	1.616	508.65					1.616	508.65	
Crop 4	Urd	0.235	374.80					0.235	374.80	
Crop 5	Moong	0.159	344.15					0.159	344.15	
Crop 6	Groundnut	0.101	608.43					0.101	608.43	
Crop 7	Wheat			1.930	1025.22			1.930	1025.22	
Crop 8	Chick pea			2.545	889.86			2.545	889.86	
Crop 9	Pea			0.940	1517.09			0.940	1517.09	
Crop 10	Lentil			0.041	779.81			0.041	779.81	
Crop 11	Mustard			0.373	242.72			0.373	242.72	
Major Horticultural crops (Crops to be identified based on total acreage)										
Crop 1	Cauliflower	35.66	0.273							
Crop 2	Cabbage	32.34	0.294							
Crop 3	Tomato	28.38	0.280							
Crop 4	Brinjal	12.86	0.258							
Crop 5	Chilli	.5200	0.086							
Crop 6	L. Finger	6.00	0.166							
Crop 7	Bottle gourd	80.00	0.166							
Crop 8	Bitter gourd	99.680	0.164					99.680	0.164	
Crop 9	Cucumber	22.800	0.190					22.800	0.190	
Crop 10	Ridge gourd	46.120	0.162					46.120	0.162	
Crop 11	Sponge gourd	8.00	0.166					8.00	0.166	
Crop 12	Frenchbean	13.360	0.090					13.360	0.090	
Others										

1.12	**Sowing window for 5 major field crops** (start and end of normal sowing period)	Crop 1: Paddy	2: Maize	3: Arhar	4:Wheat	5: Groundnut
	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 / No
		Mean annual rainfall as Annexure 2	Enclosed: Yes / No
		Soil map as Annexure 3	Enclosed: Yes / No

2.0 Strategies for weather related contingencies

2.1 Drought

2.1.1 Rainfed situation

Condition			Suggested Contingency measures		
Early season drought (delayed onset)	**Major Farming situation[a]**	**Normal Crop / Cropping system[b]**	**Change in crop / cropping system[c] including variety**	**Agronomic measures[d]**	**Remarks on Implementation[e]**
Delay by 2 weeks (Specify month)* **June 4th week** **UPLAND**	Sandy lateritic soil	Pigeon pea, Groundnut, Upland rice, Maize Pigeon pea+ groundnut Pigeon pea + maize Vegetables- Brinjal,tomato, spongegourd	Pigeon pea, groundnut, maize, upland rice, black gram Pigeon pea + black gram Pigeon pea + Upland rice Seedling of finger millet Vegetables- Brinjal,tomato, spongegourd, cucurbits, cow pea, bean	Wider spacing (90x25 cm) for pigeon pea Intercropping	

Condition			Suggested Contingency measures		
Early season drought (delayed onset)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Change in crop/cropping system[c]**	**Agronomic measures[d]**	**Remarks on Implementation[e]**
Delay by 4 weeks (Specify month) **July 2nd week**	Sandy soil lateritic	Pigeon pea, Groundnut, Upland rice, Black gram, Green gram Vegetables- Brinjal,tomato, spongegourd	Continued up to 15th July Pigeon pea based intercropping Short duration varieties Birsa A- 1, UPAS- 120, Asha (ICPL- 87119) ICPH- 2671 Finger millet- Var- A-404,Birsa Maruwa- 2 Sweet potato Vegetables- Brinjal,tomato, spongegourd, cucurbits, cow pea, bean, bhindi, chilli Pegion pea + Bhindi Maize + Beans	Intercropping in standing crop like maize, pigeon pea, sown on ridge method	

Condition			Suggested Contingency measures		
Early season	**Major**	**Normal**	**Change in crop/cropping**	**Agronomic**	**Remarks on**

drought (delayed onset)	Farming situation[a]	Crop/cropping system[b]	system[c]	measures[d]	Implementation[e]
Delay by 6 weeks (Specify month) **July 4th week**	Sandy soil lateritic acidic	Sweet potato fallow French bean, bhindi, tomato, brinjal	Sweet potato continue Black gram, Niger, Horse gram Finger millet French bean, bhindi, tomato, brinjal, chilli, cow pea		

Condition			Suggested Contingency measures		
Early season drought (delayed onset)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Change in crop/cropping system[c]**	**Agronomic measures[d]**	**Remarks on Implementation[e]**
Delay by 8 weeks (Specify month) **2nd week of August**		Niger, Horse gram	Continue Niger & Horse gram, Toria		

Condition			Suggested Contingency measures		
Early season drought (delayed onset)	**Major Farming situation[a]**	**Normal Crop / Cropping system[b]**	**Change in crop / cropping system[c] including variety**	**Agronomic measures[d]**	**Remarks on Implementation[e]**
Delay by 2 weeks (Specify month)* June 4th week **(REFER TO THE MATRIX TABLE)** **MID LAND**	Sandy loam soils	Nursery raising of long duration Paddy in dry method Var- MTU- 7029, 1001	Nursery raising of long duration Medium duration Nursery raising of Hybrid rice Var- 6444		

Condition			Suggested Contingency measures		
Early season	**Major**	**Normal**	**Change in**	**Agronomic**	**Remarks on**

drought (delayed onset)	Farming situation[a]	Crop/cropping system[b]	crop/cropping system[c]	measures[d]	Implementation[e]
Delay by 4 weeks (Specify month) July 2nd week	Sandy loam	Seedling raising	1.Seedling raising Medium duration rice Var- IR- 64, Lalat, Navin, Hybrid- 6444 2.To save nursery by life saving irrigation of raised seedlings 3. Direct dry sowing of paddy 4.Brown manuring with Dhaincha	Nursery raising by wet method with sprouted seed In direct dry sowing may be sown behind the plough with 50-60 kg seed/ha	Promotion of SRI technique through RKVY

Condition			Suggested Contingency measures		
Early season drought (delayed onset)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Change in crop/cropping system[c]**	**Agronomic measures[d]**	**Remarks on Implementation[e]**
Delay by 6 weeks (Specify month) July 4th week	Sandy soil	Nursery raising with dry method Var- IR-64, Lalat, IR-36	1. Direct sowing of paddy- Anjali, Bandana, Abhisekh, Birsa Vikas Dhan- 9 &10	Direct sowing 50-60 kg/ha Behind the plough	

Condition			Suggested Contingency measures		
Early season drought (delayed onset)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Change in crop/cropping system[c]**	**Agronomic measures[d]**	**Remarks on Implementation[e]**
Delay by 8 weeks (Specify month) 2nd week of August	Sandy loam soil	Transplanting of paddy	Transplanting of paddy is seed is available Sowing of Black gram Var- PU-19 & early Toria Var—T-9, PT- 303	Transplanting with 5-6 seedling/hil If age of seedling more than 30 cms	

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

onset)	situation[a]		including variety		
Delay by 2 weeks (Specify month)* **June 4th week** **LOW LAND**	Sandy clay loam	Seedling of paddy with dry method Var- MTU- 7029	Seedling raising with pudded method Depog method of seedling Var- MTU- 7029, BPT-5204, Rajendra mansuri	Seedling with spouted seed	

Condition			Suggested Contingency measures		
Early season drought (delayed onset)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Change in crop/cropping system[c]**	**Agronomic measures[d]**	**Remarks on Implementation[e]**
Delay by 4 weeks (Specify month) July 2nd week	Sandy clay loam	Nursery raising of MTU- 7029	If seedling is available transplanted rice Seedling of short duration variety Lalat, Navin, Arize -6444		

Condition			Suggested Contingency measures		
Early season drought (delayed onset)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Change in crop/cropping system[c]**	**Agronomic measures[d]**	**Remarks on Implementation[e]**
Delay by 6 weeks (Specify month) July 4th week	Sandy clay loam	Transplanting of paddy	Transplanting of lowland Variety		

Condition			Suggested Contingency measures		
Early season drought (delayed onset)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Change in crop/cropping system[c]**	**Agronomic measures[d]**	**Remarks on Implementation[e]**
Delay by 8 weeks (Specify month) 2nd week of August		Transplanting if seed is available	Transplanting if seed is available Transplanting of short duration variety	Reduce fertility dose by 20 % (80:40:20) KgNPK/ha Increase no. of seedling (5-6/hil) Transplanting at closes spacing 15x10 cm	

Condition			Suggested Contingency measures		
Early season	**Major**	**Normal**	**Crop management[c]**	**Soil nutrient**	**Remarks on**

drought **(Normal onset)**	**Farming situation[a]**	**Crop/cropping system[b]**		**& moisture conservation measues[d]**	**Implementation[e]**
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc. **UP LAND**	Sandy soil red lateritic	Upland rice Groundnut+ Pigeon pea Maize Maize + Pigeon pea Bhindi + Maize Vegetable Cow pea Maize- Local (Sathi, Kanchan) Upland rice- Brown Goda Pigeon pea- Aghani (local) Vegetables- Brinjal,tomato, spongegourd, cucurbits, cow pea, bean, bhindi, chilli	1. Interculturing in standing crop with thinning & gap filling 2. Resowing Pigeon pea- UPAS-120, Asha, ICPL-87109 Maize- Suwan- 1, HQPM-1 BVM-2, Kanchan Groundnut- TG-22, Birsa GN-2 Sesseme- Kanke safed, TC-25 Upland rice + Pigeon pea (1:3) Pigeon pea+ Black gram (1:2) Resowing of brnjal, tomato , cucurbits	Interculturing	1. Supply of weeding machine 2. Supply of seeds on subsidized rate

Condition			**Suggested Contingency measures**		
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Soil nutrient & moisture conservation measues[d]**	**Remarks on Implementation[e]**
At vegetative stage	Sandy soil red lateritic	Upland rice Groundnut+ Pigeon pea Maize Maize + Pigeon pea Bhindi + Maize Vegetable Cow pea Maize- Local (Sathi, Kanchan) Upland rice- Brown Goda Pigeon pea- Aghani (local)	1. Interculturing in standing crop with thinning & gap filling 2. Resowing Pigeon pea- UPAS- 120, Asha, ICPL- 87109 Maize- Suwan- 1, HQPM-1 BVM-2, Kanchan Groundnut- TG-22, Birsa GN-2 Sesseme- Kanke safed,TC-25 Upland rice + Pigeon pea (1:3) Pigeon pea+ Black gram (1:2) Life saving irrigation to vegetable crops Sowing of drought resistant crops- Black gram, Cowpea, Niger, Horse gram		Rain water harvesting structure should made through watershed programme / MNREGA Supply of seeds of Black gram Cowpea, Niger, Horse gram on subsidized rate under different scheme

Condition			**Suggested Contingency measures**		
Mid season drought (long dry spell)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Soil nutrient & moisture conservation measues[d]**	**Remarks on Implementation[e]**
	Sandy soil	As above			

At flowering/ fruiting stage		Upland rice Groundnut+ Pigeon pea Maize Maize + Pigeon pea Bhindi + Maize Vegetable Cow pea Maize- Local (Sathi, Kanchan) Upland rice- Brown Goda Pigeon pea- Aghani (local)	Interculturing Weeding Thining Sowing of Niger- BN-1, BN-2, JNC-06 Horse gram- Birsa Kulthi, Madhu		Rain water harvesting structure should made through watershed programme / MNREGA Supply of seeds of Black gram Cowpea, Niger, Horse gram on subsidized rate under different scheme

Condition			**Suggested Contingency measures**		
Terminal drought (Early withdrawal of monsoon)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Rabi Crop planning[d]**	**Remarks on Implementation[e]**
	Sandy loam soil	Upland rice Groundnut+ Pigeon pea Maize Maize + Pigeon pea Bhindi + Maize Vegetable Cow pea Maize- Local (Sathi, Kanchan) Upland rice- Brown Goda Pigeon pea- Aghani (local)	1. Life saving irrigation of vegetables 2. Upland rice hervested ford strow purpose 3. Sowing of Niger & Horse gram 4. Harvested of groundnut of physiological maturity stage	Toria Early cultivation of potato	1. Farm ponds through watershed management programme 2-5 % modul for rain water harvesting through watershed management & NNREGA programme

Condition			**Suggested Contingency measures**		
Early season drought **(Normal onset)**	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Soil nutrient & moisture conservation measues[d]**	**Remarks on Implementation[e]**

Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc. **MID LAND**	Sandy loam	Rice Var- IR- 36, IR-64, Lalat	Rice Var- Lalat, Navin, MTU- 1010, Abhishek 2- life saving irrigation 2- Direct sowing of rice	Weeding, split, application of Nitrogen	Increase water harvesting structures like ponds, check dams & open well

Condition			**Suggested Contingency measures**		
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Soil nutrient & moisture conservation measues[d]**	**Remarks on Implementation[e]**
At vegetative stage	Sandy loam 3 4 5	Paddy IR- 64, IR – 36, Lalat	Paddy IR- 64, Lalat Navin, Abhishek Life saving irrigation through well, ponds check dams	Weeding Foliar spray of Urea	Farm ponds Check dams Rain water harvesting

Condition			**Suggested Contingency measures**		
Mid season drought (long dry spell)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Soil nutrient & moisture conservation measues[d]**	**Remarks on Implementation[e]**
At flowering/ fruiting stage	Sandy loam	Paddy IR- 64, IR – 36, Lalat	Paddy IR- 64, Lalat Navin, Abhishek Life saving irrigation through well, ponds check dams	Weeding	

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

		Paddy IR- 64, IR – 36, Lalat	Paddy IR- 64, Lalat Navin, Abhishek Life saving irrigation Crop harvested at pre mature stage for fodder and animals	**Sowing of Toria** Field preparation for early rabi pulses like chick pea (P- 256,PL-406) Lentil and oilseed-mustard (Shicani, Pusa Agrani) Linseed (Shubhra, T-397)	

Condition			**Suggested Contingency measures**		
Early season drought **(Normal onset)**	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Soil nutrient & moisture conservation measues[d]**	**Remarks on Implementation[e]**
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc. **LOW LAND**	Sandy clay loam	Paddy MTU- 7029, 1001, Kanak	Paddy MTU- 7029, BPT-5204, Rajendra Hybrid- Arize-6444 Resowing of paddy		Ponds check dam through water shed management & MNREGA scheme

Condition			**Suggested Contingency measures**		
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Soil nutrient & moisture conservation measues[d]**	**Remarks on Implementation[e]**
At vegetative stage	Sandy clay loam	Paddy MTU- 7029, 1001, Kanak	Paddy MTU- 7029, BPT-5204, Rajendra Hybrid- Arize-6444 Resowing of paddy Life saving irrigation	Weeding foliar spray of Urea	Ponds check dam through water shed management & MNREGA scheme

Condition			Suggested Contingency measures		
Mid season drought (long dry spell)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Soil nutrient & moisture conservation measues[d]**	**Remarks on Implementation[e]**
At flowering/ fruiting stage	Sandy clay loam	Paddy MTU- 7029, 1001, Kanak	Paddy MTU- 7029, BPT-5204, Rajendra Hybrid- Arize-6444 Resowing of paddy Life saving irrigation	Weeding foliar spray of Urea	

Condition			Suggested Contingency measures		
Terminal drought (Early withdrawal of monsoon)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Rabi Crop planning[d]**	**Remarks on Implementation[e]**
	Sandy clay loam	Paddy MTU- 7029, 1001, Kanak	Paddy MTU- 7029, BPT-5204, Rajendra Hybrid- Arize-6444 Resowing of paddy Life saving irrigation Crop harvested at physiological maturity	Early sowing of wheat oilseed-mustard Pulses- chick pea Intercropping Wheat+ Mustard	

Notes:

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

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

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

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

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

- In case of early and mid season dry spells indicate moisture conservation techniques to save standing crop.

- In case of terminal drought indicate early rabi cropping with suitable crops/varieties with a possibility of giving pre-sowing/come up irrigation etc.

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

2.1.2 Drought - Irrigated situation

Condition			**Suggested Contingency measures**		
	Major Farming situation[f]	**Normal Crop/cropping system[g]**	**Change in crop/cropping system[h]**	**Agronomic measures[i]**	**Remarks on Implementation[j]**
Limited release of water in canals due to low rainfall	1) Farming situation: Mention source of irrigation, topography (upland/lowland) and soil colour & depth Eg; canal irrigated shallow red soils; **tankfed medium deep black soils**	Cropping system 1:			
		Cropping system 2:			
		Cropping system 3:			
	2) Farming situation:	Cropping system 1:			
		Cropping system 2:			
		Cropping system 3:			
Condition			**Suggested Contingency measures**		
	Major Farming situation[f]	**Normal Crop/cropping system[g]**	**Change in crop/cropping system[h]**	**Agronomic measures[i]**	**Remarks on Implementation[j]**
Non release of water in canals	1) Farming situation:	Cropping system 1:			
		Cropping system 2:			

Condition			Suggested Contingency measures		
	Major Farming situation[f]	**Normal Crop/cropping system[g]**	**Change in crop/cropping system[h]**	**Agronomic measures[i]**	**Remarks on Implementation[j]**
under delayed onset of monsoon in catchment	Mention source of irrigation, topography (upland/lowland) and soil colour & depth Eg; canal irrigated shallow red soils; **tankfed medium deep black soils**	Cropping system 3:			
	2) Farming situation:	Cropping system 1:			
		Cropping system 2:			
		Cropping system 3:			
Condition			**Suggested Contingency measures**		
	Major Farming situation[f]	**Normal Crop/cropping system[g]**	**Change in crop/cropping system[h]**	**Agronomic measures[i]**	**Remarks on Implementation[j]**
Lack of inflows into tanks due to insufficient /delayed onset of monsoon	1) Farming situation: Mention source of irrigation, topography (upland/lowland) and soil colour & depth Eg; canal irrigated shallow red soils; **Tube well irrigated medium red soils**	Cropping system 1:			
		Cropping system 2:			
		Cropping system 3:			
	2) Farming situation:	Cropping system 1:			
		Cropping system 2:			
		Cropping system 3:			

Condition			Suggested Contingency measures		
	Major Farming situation[f]	**Normal Crop/cropping system[g]**	**Change in crop/cropping system[h]**	**Agronomic measures[i]**	**Remarks on Implementation[j]**
Insufficient groundwater recharge due to low rainfall	1) Farming situation: Mention source of irrigation, topography (upland/lowland) and soil colour & depth Eg; canal irrigated shallow red soils; **tankfed medium deep black soils**	Cropping system 1:			
		Cropping system 2:			
		Cropping system 3:			
	2) Farming situation:	Cropping system 1:			
		Cropping system 2:			
		Cropping system 3:			
Any other condition (specify)					

Condition			Suggested Contingency measures		
	Major Farming situation[f]	Normal Crop/cropping system[g]	Change in crop/cropping system[h]	Agronomic measures[i]	Remarks on Implementation[j]

Notes:

[f] Describe such as uplands, medium and low lands and source of irrigation such as tank fed medium or deep black/loamy/red soils, tube well irrigated red soils, canal irrigated red soils, well irrigated black soils etc.,

[g] The normal crop or cropping systems grown in a given irrigated situation

[h] Suggested change in the crop, variety or cropping system in view of delay in release of irrigation water, less water availability etc.,

[I] All agronomic measures like improved methods of irrigation (skip row etc.), micro irrigation (drip/sprinkler/sub-surface), deficit irrigation, limited area irrigation, mulching etc, that improve water use efficiency and make best use of limited water including methods of ground water recharge and sharing.

[j] Comments on source of availability of seed of the alternate crop or variety, any constraints in marketing of alternative crop implications for livestock and dairy sectors and details of state or central schemes like National Rural Employment Guarantee Scheme (NREGS), Rashtriya Krishi Vikas Yojana (RKVY), National Food Security Mission (NFSM), Integrated Scheme on Oilseeds, Pulses, Oilpalm and Maize (ISOPOM), National Horticulture Mission (NHM) etc., which facilitate implementation of the agronomic measures suggested.

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

Condition	Suggested contingency measure			
Continuous high rainfall in a short span leading to water logging	**Vegetative stage[k]**	**Flowering stage[l]**	**Crop maturity stage[m]**	**Post harvest[n]**
Crop1 (specify)				
Crop2- Pigeon pea	Ridge making	Draining		
Crop3- Black gram	Ridge making	Draining		
Crop4- Paddy	Bund making	Draining	Draining	
Crop5				
Horticulture				
Crop1 - Cucurbits	Staking	Draining	Draining	
Crop2- Vegetables	Sowing on ridge			
Crop3				
Crop4				
Crop5				
Outbreak of pests and diseases due to unseasonal rains				
Crop1- Pulses	Leaf hoper/cuter Control- Monocrotophos @ 1 ml.lit			
Crop2- Paddy/ Maize	Stem borer Control- forate 10g @ 20 kg/ha	Maize Seath blight Control- Contaf 1.0 lit or Endophhil 2.0 lit in 500 lit water/ha		
Crop- Paddy		Blast diseases Control- Bim (0.05 %) spraying Bavastin (250 gm)+ Madophil M-45 (1.25 kg) spraying at 10-15 days interval	False Smut Control- Tilt 0.1 % or Britox-50 (2 kg/ha) spraying	
Crop4 – Bhindi (Lady finger)		YVM Control- Carbofuran 3 G @ 3 gm/m^2		
Horticulture				
Crop1 Frenchbean	Rust disease Control- Indophil 2.5 kg/ha			

[k] Such as drainage in black soils, indicate taking up need based inter-culture operations, outbreak of pests/diseases along with their management etc.

[l] Such as drainage in black soils, application of hormones/nutrient sprays to prevent flower drop or promote quick flowering/fruiting and indicate possibility of pest/disease outbreak with need based prophylactic / curative management etc.

[m] Such as drainage in black soils, measures for preventing seed germination etc and Indicate possibility of harvesting at physiological maturity immediately and shifting produce to safer place and protection against pest/disease damage in storage etc.

[n] Such as shifting of produce to safer place for drying and maintaining the quality of grain/fodder and protection against pest/disease damage in storage etc

2.5 Contingent strategies for Livestock, Poultry & Fisheries

2.5.1 Livestock

	Suggested contingency measures		
	Before the event[s]	**During the event**	**After the event**
Drought			
Feed and fodder availability	Open grazing	Grazing of grass, forage crop production	
Drinking water	Tank, ponds, check dams	Through drinking tub at home	
Health and disease management	FDM, HS, Pig fever	FDM vaccine @ 5 ml BQ H.S. vaccine @ 3 ml	

[s] based on forewarning wherever available

2.5.2 Poultry

	Suggested contingency measures			Convergence/linkages with ongoing programs, if any
	Before the event	**During the event**	**After the event**	
Drought				
Shortage of feed ingredients	Domestic feeding available	Supply drinking water through utensil		
Drinking water				
Health and disease management	Ranikhet pox	F- 1 strain vaccine		

[a] based on forewarning wherever available