Agriculture Contingency Plan for District: Bilaspur

State: CHHATTISGARH

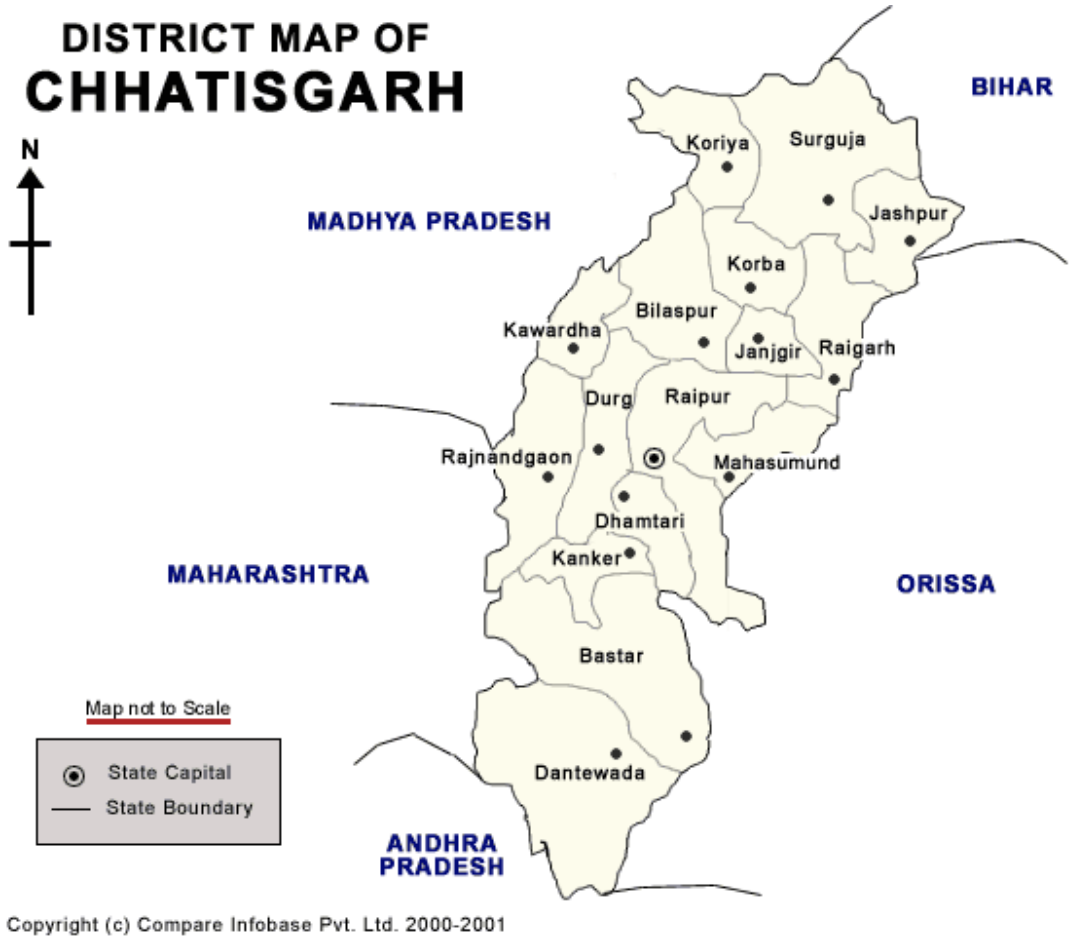
1.0 District Agriculture profile				
1.1	**Agro-Climatic/Ecological Zone**			
	Agro Ecological Sub Region (ICAR)	11.0 Chhattisgarh/Mahanadi Basin Agro-eco region J3 (Cd/Cm)5		
	Agro-Climatic Zone (Planning Commission)	Zone-7 Eastern plateau and hills region		
	Agro Climatic Zone (NARP)	Chhattisgarh plain zone		
	List all the districts falling under the NARP Zone* (*>50% area falling in the zone)	Raipur, Bilaspur, Korba, Raigarh, Janjgir-champa, Kabirdham, Rajnandgaon, Durg, Balod, Baloda Bazar, Bemetara, Dhamtari, Mahasamund, Kanker (14 districts)		
	Geographic coordinates of district headquarters	Latitude	Longitude	Altitude
		22.1	82.1	262 Meters
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS	ZARS, Sarkanda, Bilaspur, C.G.		
	Mention the KVK located in the district with address	Krishi Vigyan Kendra, Sarkanda, Bilaspur (C.G.)		
	Name and address of the nearest Agromet Field Unit (AMFU, IMD) for agro-advisories in the Zone	Department of Agrometeorology, College of Agriculture, IGKV, Raipur (C.G.)		

District	Total Geographic Area (000' ha.)	Sole Cropped Area (000' ha.)	Double Cropped Area (000' ha.)	Total Irrigated Area (000' ha.)	Irrigated percentage with total cropped area	Total Cropped Area (000' ha.)
Bilaspur	581.9	231.8	57.4	100.2	35%	289.2

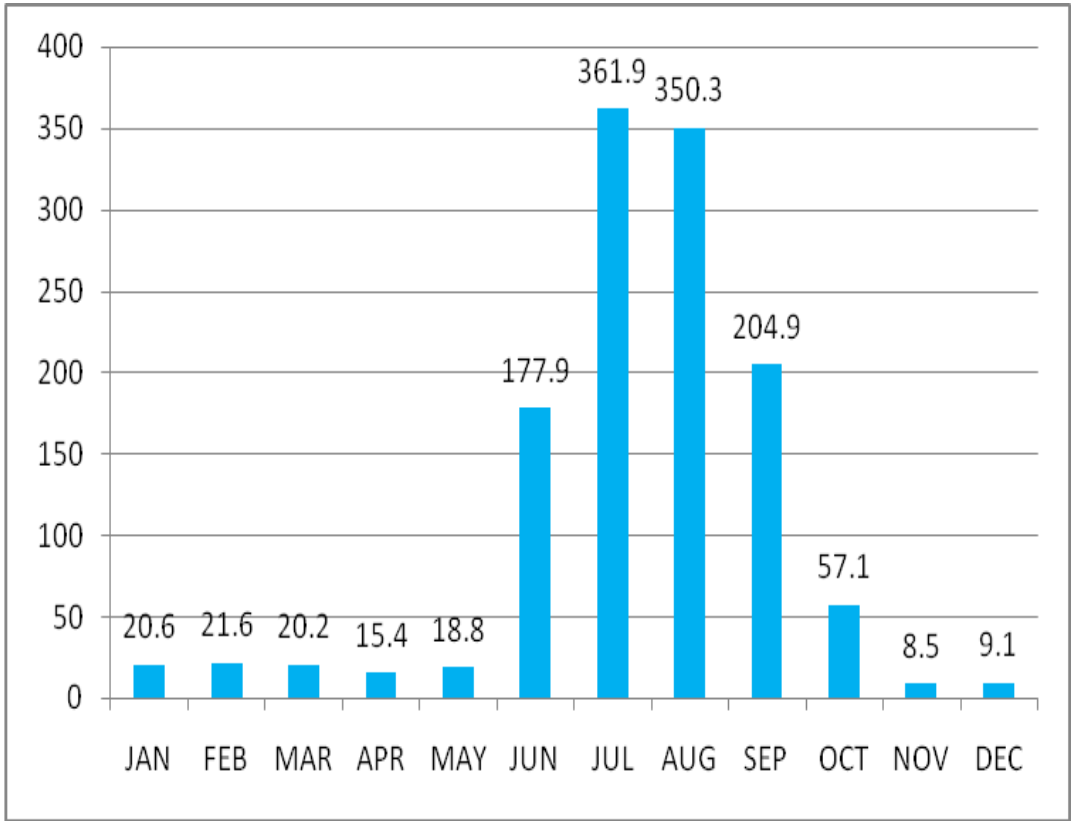
1.2	Rainfall	Normal RF(mm)	Normal Rainy days (number)	Normal Onset (specify week and month)	Normal Cessation (specify week and month)
	SW monsoon (June-Sep):	**1007.8**		3rd week of June	4th week of September
	NE Monsoon(Oct-Dec):	**80.1**		Post monsoon (October-December)	-
	Winter (Jan- March)	**40.2**		Winter rains	-
	Summer (Apr-May)	**36.2**		-	-
	Annual	**1164.6**		-	-

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

Annexure 01 : Location map of the Chhattisgarh state and district Bilaspur



Annexure 02 : Mean annual rainfall (mm) of district



Source: Agricultural Statistics 2013, Commissioner land records, Raipur, Govt. of Chhattisgarh

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 (July first week)* **(REFER TO THE MATRIX TABLE)**	1) Farming situation: ***Unbunded shallow light soils***	Cropping system 1: Maize	-	-	Line sowing
		Cropping system 2: Pulses Mungbean (Pusa Vishal,HUM 1, HUM-16, BM 4, HUM 12) / Urdbean (TU 94-2, TAU-2, KU 96-3, Indira Urd 1) Pigeonpea (ICPL87, JKM189, UPAS 120, BDN 2, Rajivlochan)	-	-	Line sowing
		Cropping system 3: Oilseeds	-	-	Line sowing
				-	
			-	-	-
	2) Farming situation: ***Unbunded sloppy black soils***	Cropping system 1: Rice- Purnima, Danteshwari, Samleshwari, Annada Maize- Hishell, P 3785, Bio 9681, 900M, Seedtech 2324, Pro 4640, DMH 117, Pro Agro-4212 PEM 1 , VH - 9,17HQPM-1 NMH-731NK-30, NMH-803KMH-3426	-	-	Line sowing

		Cropping system 2: Soybean	-	-	Line sowing
		Cropping system 3: Pigeon pea	-	-	Line sowing
		Cropping system 4: Sesame	-	-	Provide drainage
	3) Farming situation: ***Bunded mid-land; heavy black soils***	Cropping system 1: Rice - MTU1010, IR64, IR 36, Indira Barani Dhan 1, Chandrahasni, Samleshwari	-	Transplanting method	-
	4) Farming situation: ***Bunded low-lands; heavy black soils***	Rice-Mahamaya, s swarna, Sampda, IGKV R1, IGKV R2, Bamleshwari, Indira Sona	-	Transplanting method	-
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 4 weeks (July third week)	1) Farming situation: ***Unbunded shallow light soils***	Cropping system 1: Maize	Short-duration variety	Higher seed rate	Line sowing
		Cropping system 2: Pulses Mungbean (Pusa Vishal,HUM 1, HUM-16, BM 4, HUM 12) / Urdbean (TU 94-2, TAU-2, KU 96-3, Indira Urd 1) Pigeonpea (ICPL87, JKM189, UPAS 120, BDN 2, Rajivlochan)	Short-duration variety	Higher seed rate	Line sowing
		Cropping system3: Oilseeds	Short-duration variety	Higher seed rate	Line sowing
	2) Farming situation: ***Unbunded sloppy black soils***	Cropping system 1: Rice - Danteshwari, Samleshwari, Purnima, Annda Maize- Hishell, P 3785, Bio	Rice- Anjali, Indira barani dhan-1, Annda, Kalinga 3	Higher seed rate	Line sowing

		9681, 900M, Seedtech 2324, Pro 4640, DMH 117, Pro Agro-4212 PEM 1 , VH - 9,17HQPM-1 NMH-731NK-30, NMH-803KMH-3426			
		Cropping system 2: Soybean	Short-duration variety	Higher seed rate	Line sowing
		Cropping system 3: Pigeon pea	Short-duration variety	Higher seed rate	Line sowing
		Cropping system 4: Sesame	Short-duration variety	Higher seed rate	Line sowing
	3) Farming situation: ***Bunded mid-land; heavy black soils***	Cropping system 1: Rice - MTU1010, IR64, IR 36, Indira Barani Dhan 1, Chandrahasni, Samleshwari	Rice- Poornima, Samleshwari, Danteshwari, Indira barani dhan-1	Sowing of pre-germinated seeds; closer transplanting with more no. of seedlings/hill	Puddled field; chopped the seedlings
	4) Farming situation: ***Bunded low-lands; heavy black soils***	Cropping system 1: Rice - Rice-Mahamaya, s swarna, Sampda, IGKV R1, IGKV R2, Bamleshwari, Indira Sona	Rice- Chandrahasni IR64, karma masuri, Indira Barani Dhan -1, MTU 1010	Sowing of pre-germinated seeds; closer transplanting with more no. of seedlings/hill	Puddled field; chopped the seedlings

Condition			**Suggested Contingency measures**		
Early season drought (delayed onset)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Change in crop/cropping system[c]**	**Agronomic measures[d]**	**Remarks on Implementation[e]**
Delay by 6 weeks (August first week)	1) Farming situation: ***Unbunded shallow light soils***	Cropping system1: Maize	Change the crop with niger	Normal seed rate	Line sowing
		Cropping system2: Pulses Mungbean (Pusa Vishal,HUM 1, HUM-16, BM 4, HUM 12) / Urdbean (TU 94-2, TAU-2,			

		KU 96-3, Indira Urd 1) Pigeonpea (ICPL87, JKM189, UPAS 120, BDN 2, Rajivlochan)			
		Cropping system3: Oilseeds			
	2) Farming situation: ***Unbunded sloppy black soils***	Cropping system 1: Rice- Danteshwari, Samleshwari, Purnima, Annda Maize- Hishell, P 3785, Bio 9681, 900M, Seedtech 2324, Pro 4640, DMH 117, Pro Agro-4212 PEM 1 , VH - 9,17HQPM-1 NMH-731NK-30, NMH-803KMH-3426	Change the crops with either niger or short-duration green gram or black gram varieties		
		Cropping system 2: Soybean			
		Cropping system 3: Pigeon pea			
		Cropping system 4: Sesame	Short-duration varieties	Higher seed rate	Line sowing
	3) Farming situation: ***Bunded mid-land; heavy black soils***	Cropping system 1: Rice - MTU1010, IR64, IR 36, Indira Barani Dhan 1, Chandrahasni, Samleshwari	Sowing of pre-germinated seeds of short-duration varieties in puddled field	Higher seed rate	There should not be initial standing water column in puddled field
	4) Farming situation: ***Bunded low-lands; heavy black soils***	Cropping system 1: Rice - Rice-Mahamaya, s swarna, Sampda, IGKV R1, IGKV R2, Bamleshwari, Indira Sona	Sowing of pre-germinated seeds of short-duration varieties in puddled field	Higher seed rate	There should not be initial standing water column in puddled field

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 (August third week)	1) Farming situation: ***Unbunded shallow light soils***	Cropping system 1: Maize	Change the crop either with niger or horse gram	Normal seed rate	Line sowing
		Cropping system2: Pulses Mungbean (Pusa Vishal,HUM 1, HUM-16, BM 4, HUM 12) / Urdbean (TU 94-2, TAU-2, KU 96-3, Indira Urd 1) Pigeonpea (ICPL87, JKM189, UPAS 120, BDN 2, Rajivlochan)			
		Cropping system 3: Oilseeds			
	2) Farming situation: ***Unbunded sloppy black soils***	Cropping system 1: Rice - Danteshwari, Samleshwari, Purnima, Annda Maize- Hishell, P 3785, Bio 9681, 900M, Seedtech 2324, Pro 4640, DMH 117, Pro Agro-4212 PEM 1 , VH - 9,17HQPM-1 NMH-731NK-30, NMH-803KMH-3426	Change the crop either with niger or horse gram	Normal seed rate	Line sowing
		Cropping system 2: Soybean			
		Cropping system 3: Pigeon pea			
		Cropping system 4: Sesame			

	3) Farming situation: ***Bunded mid-land; heavy black soils***	Cropping system 1: Rice - MTU1010, IR64, IR 36, Indira Barani Dhan 1, Chandrahasni, Samleshwari	Change the crop either with linseed, lathyrus, field pea or toria	Normal seed rate; line sowing in October-November	Provisions of adequate drainage during rainy season
	4) Farming situation: ***Bunded low-lands; heavy black soils***	Cropping system 1: Rice - Rice-Mahamaya, s swarna, Sampda, IGKV R1, IGKV R2, Bamleshwari, Indira Sona	Change the crop either with linseed, lathyrus, field pea or toria	Normal seed rate; line sowing in October-November	Provisions of adequate drainage during rainy season

Condition			**Suggested Contingency measures**		
Early season drought **(Normal onset)**	**Major Farming situation**[a]	**Normal Crop/cropping system**[b]	**Crop management**[c]	**Soil, nutrient & moisture conservation measues**[d]	**Remarks on Implementation**[e]
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc.	1) Farming situation: ***Unbunded shallow light soils***	Cropping system 1: Maize	Re-sowing with same variety	Addition of organic matters & adoption of soil & moisture conservation measures	Line sowing; higher seed rate
		Cropping system2: Pulses Mungbean (Pusa Vishal,HUM 1, HUM-16, BM 4, HUM 12) / Urdbean (TU 94-2, TAU-2, KU 96-3, Indira Urd 1) Pigeonpea (ICPL87, JKM189, UPAS 120, BDN 2, Rajivlochan)			
		Cropping system 3: Oilseeds			
	2) Farming situation: ***Unbunded sloppy***	Cropping system 1: Rice - Danteshwari, Samleshwari, Purnima, Annda		Addition of organic matters & adoption of	

	black soils	Maize- Hishell, P 3785, Bio 9681, 900M, Seedtech 2324, Pro 4640, DMH 117, Pro Agro- 4212 PEM 1 , VH - 9,17HQPM-1 NMH-731NK-30, NMH-803KMH-3426	Re-sowing with same variety	soil & moisture conservation measures	Line sowing; higher seed rate
		Cropping system 2: Soybean			
		Cropping system 3: Pigeon pea			
		Cropping system 4: Sesame			
	3) Farming situation: ***Bunded mid-land; heavy black soils***	Cropping system 1: Rice - MTU1010, IR64, IR 36, Indira Barani Dhan 1, Chandrahasni, Samleshwari	Re-sowing with same variety both in main field & nursery	Repairing of field bunds	Line sowing; higher seed rate
	4) Farming situation: ***Bunded low-lands; heavy black soils***	Cropping system 1: Rice - Rice-Mahamaya, s swarna, Sampda, IGKV R1, IGKV R2, Bamleshwari, Indira Sona	Re-sowing with same variety both in main field & nursery	Repairing of field bunds	Line sowing; higher seed 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	1) Farming situation: ***Unbunded shallow light soils***	Cropping system 1: Maize	Weed control, thinning, partial leaf removal	Mulching, intercultural operations, foliar application of nutrients	
		Cropping system 2: Pulses Mungbean (Pusa Vishal,HUM 1, HUM-16, BM 4, HUM 12) /			

		Urdbean (TU 94-2, TAU-2, KU 96-3, Indira Urd 1) Pigeonpea (ICPL87, JKM189, UPAS 120, BDN 2, Rajivlochan)			
		Cropping system 3: Oilseeds			
	2) Farming situation: ***Unbunded sloppy black soils***	Cropping system 1: Rice - Indira Barani Dhan 1, Samleshwari, Annda, Danteshwari Maize- Hishell, P 3785, Bio 9681, 900M, Seedtech 2324, Pro 4640, DMH 117, Pro Agro- 4212 PEM 1 , VH - 9,17HQPM-1 NMH-731NK-30, NMH-803KMH-3426	Weed control, thinning	Mulching, intercultural operations, foliar application of nutrients	
		Cropping system 2: Soybean	Weed control, thinning, partial leaf removal		
		Cropping system 3: Pigeon pea			
		Cropping system 4: Sesame			
	3) Farming situation: ***Bunded mid-land; heavy black soils***	Cropping system 1: Rice - MTU1010, IR64, IR 36, Chandrahasni, Indira barani dhan-1, Samleshwari,	Weed control, thinning	Mulching, intercultural operations, repairing of bunds, foliar application of nutrients	
	4) Farming situation: ***Bunded low-lands; heavy black soils***	Cropping system 1: Rice - Rice-Mahamaya, s swarna, Sampda, IGKV R1, IGKV R2, Bamleshwari, Indira Sona	Weed control, thinning	Mulching, intercultural operations, repairing of bunds, foliar application of nutrients	

Condition			Suggested Contingency measures		
Mid season drought (long dry spell)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Soil nutrient & moisture conservation measues[d]**	**Remarks on Implementation[e]**
At flowering/ fruiting stage	1) Farming situation: ***Unbunded shallow light soils***	Cropping system 1: Maize	Weed control, thinning, partial leaf removal, life saving irrigation; if available	Mulching, intercultural operations, foliar application of nutrients	
		Cropping system 2: Pulses Mungbean (Pusa Vishal,HUM 1, HUM-16, BM 4, HUM 12) / Urdbean (TU 94-2, TAU-2, KU 96-3, Indira Urd 1) Pigeonpea (ICPL87, JKM189, UPAS 120, BDN 2, Rajivlochan)			
		Cropping system 3: Oilseeds			
	2) Farming situation: ***Unbunded sloppy black soils***	Cropping system 1: Rice - Indira Barani Dhan 1, Samleshwari, Annda, Danteshwari Maize- Hishell, P 3785, Bio 9681, 900M, Seedtech 2324, Pro 4640, DMH 117, Pro Agro- 4212 PEM 1 , VH - 9,17HQPM-1 NMH-731NK-30, NMH-803KMH-3426	Weed control, thinning, life saving irrigation, if available	Mulching, intercultural operations, foliar application of nutrients	
		Cropping system 2: Soybean	Weed control, thinning, partial leaf removal, life saving irrigation; if available		
		Cropping system 3: Pigeon pea			
		Cropping system 4: Sesame			

	3) Farming situation: ***Bunded mid-land; heavy black soils***	Cropping system 1: Rice - MTU1010, IR64, IR 36, Chandrahasni, Indira barani dhan-1, Samleshwari,	Weed control, thinning, life saving irrigation, if available	Mulching, intercultural operations, repairing of bunds, foliar application of nutrients	
	4) Farming situation: ***Bunded low-lands; heavy black soils***	Cropping system 1: Rice - Rice-Mahamaya, s swarna, Sampda, IGKV R1, IGKV R2, Bamleshwari, Indira Sona	Weed control, thinning, life saving irrigation; if available	Mulching, intercultural operations, repairing of bunds, foliar application of nutrients	
Condition			**Suggested Contingency measures**		
Terminal drought (Early withdrawal of monsoon)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Rabi Crop planning[d]**	**Remarks on Implementation[e]**
	1) Farming situation: ***Unbunded shallow light soils***	Cropping system 1: Maize	Partial leaf removal, life saving irrigation	*Toria* after maize harvest	Harvest the crop at physiological maturity
		Cropping system 2: Pulses Mungbean (Pusa Vishal,HUM 1, HUM-16, BM 4, HUM 12) / Urdbean (TU 94-2, TAU-2, KU 96-3, Indira Urd 1) Pigeonpea (ICPL87, JKM189, UPAS 120, BDN 2, Rajivlochan)			
		Cropping system 3: Oilseeds			
	2) Farming situation: ***Unbunded sloppy black soils***	Cropping system 1: Rice - Indira Barani Dhan 1, Samleshwari, Annda, Danteshwari Maize- Hishell, P 3785, Bio 9681, 900M, Seedtech 2324,	Life saving irrigation, if available	Plan for sowing of gram, linseed, field pea, safflower & vegetables etc.	Harvest the crop at physiological maturity , Sowing should be done after field preparation

		Pro 4640, DMH 117, Pro Agro- 4212 PEM 1 , VH - 9,17HQPM-1 NMH-731NK-30, NMH-803KMH-3426			
		Cropping system 2: Soybean	Partial leaf removal, life saving irrigation		
		Cropping system 3: Pigeon pea			
		Cropping system 4: Sesame			
	3) Farming situation: ***Bunded mid-land; heavy black soils***	Cropping system 1: Rice - MTU1010, IR64, IR 36, Chandrahasni, Indira barani dhan-1, Samleshwari,	Life saving irrigation, if available	Plan for sowing of gram, linseed, field pea, wheat, safflower etc.	Harvest the crop at physiological maturity
	4) Farming situation: ***Bunded low-lands; heavy black soils***	Cropping system 1: Rice - Rice-Mahamaya, s swarna, Sampda, IGKV R1, IGKV R2, Bamleshwari, Indira Sona	Life saving irrigation , if available	Plan for sowing of gram, linseed, field pea, wheat, lathyrus *(utera)*etc.	Harvest the crop at physiological maturity

2.1.2 Drought - Irrigated situation

Condition			**Suggested Contingency measures**		
	Major Farming situation[f]	**Normal Crop/cropping system[g]**	**Change in crop/cropping system[h]**	**Agronomic measures[i]**	**Remarks on Implementation[j]**
Delayed release of water in canals due to low rainfall	1) Farming situation: Mid-land Alfisols	Rice- MTU1010, IR64, IR 36, Chandrahasni, Indira barani dhan-1, Samleshwari,	Rice-Gram/Sunflower/ Linseed	Drilling in lines, use of higher seed rate	-
		Rice-Wheat	Rice-Gram/Sunflower/ Linseed	Drilling in lines, use of higher seed rate	-
		Cropping system 3:			
	2) Farming situation: Lowland	Rice- Mahamaya, swarna, Sampda, Chandrahasni,	Rice-Gram/Sunflower/ Linseed	Drilling in lines, use of higher seed rate	-

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]**
	Vertisols	karma masuri, IGKV R1, IGKV R2, IGKV R 1244			
		Rice-Wheat	Rice-Gram/Sunflower/ Linseed	Drilling in lines, use of higher seed rate	-
		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]**
Limited release of water in canals due to low rainfall	1) Farming situation: Mid-land Alfisols	Rice- MTU1010, IR64, IR 36, Chandrahasni, Indira barani dhan-1, Samleshwari,	Rice-Gram/Sunflower/ Linseed	Drilling in lines, adoption of moisture conservation practices	-
		Rice-Wheat	Rice-Gram/Sunflower/ Linseed	Drilling in lines, adoption of moisture conservation practices	-
		Cropping system 3:			
	2) Farming situation: Lowland Vertisols	Rice- Mahamaya, swarna, Sampda, Chandrahasni, karma masuri, IGKV R1, IGKV R2, IGKV R 1244	Rice-Gram/Sunflower/ Linseed	Drilling in lines, adoption of moisture conservation practices	-
		Rice-Wheat	Rice-Gram/Sunflower/ Linseed	Drilling in lines, adoption of moisture conservation practices	-
		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 under delayed	1) Farming situation: Mid-land Alfisols	Rice- MTU1010, IR64, IR 36, Chandrahasni, Indira barani dhan-1, Samleshwari,	Rice –Gram/ linseed/sunflower	Early sowing in *Rabi* & moisture conservation	-

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]**
onset of monsoon in catchment		Rice-Wheat	Rice –Gram/ linseed/sunflower	Early sowing in *Rabi* & moisture conservation	-
		Cropping system 3:			
	2) Farming situation: Lowland Vertisols	Rice- Mahamaya, swarna, Sampda, Chandrahasni, karma masuri, IGKV R1, IGKV R2, IGKV R 1244	Rice-Lathyrus	Relay cropping of Lathyrus	-
		Rice-Wheat	Rice-Lathyrus	Relay cropping of Lathyrus	-
		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: Mid-land Alfisols	Rice- MTU1010, IR64, IR 36, Chandrahasni, Indira barani dhan-1, Samleshwari,	Rice –Gram/ linseed/sunflower	Early sowing in *Rabi* & moisture conservation	-
		Rice-Wheat	Rice –Gram/ linseed/sunflower	Early sowing in *Rabi* & moisture conservation	-
		Cropping system 3:			
	2) Farming situation: Lowland Vertisols	Rice- Mahamaya, swarna, Sampda, Chandrahasni, karma masuri, IGKV R1, IGKV R2, IGKV R 1244	Rice-Lathyrus	Relay cropping of Lathyrus	-
		Rice-Wheat	Rice-Lathyrus	Relay cropping of Lathyrus	-

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]**
		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: Mid-land Alfisols	Rice- MTU1010, IR64, IR 36, Chandrahasni, Indira barani dhan-1, Samleshwari,	Rice- Pulses/oilseeds	Early sowing in *Rabi* & moisture conservation	-
		Rice-Wheat	Rice- Pulses/oilseeds	Early sowing in *Rabi* & moisture conservation	-
		Cropping system 3:			
	2) Farming situation: Lowland Vertisols	Rice- Mahamaya, swarna, Sampda, Chandrahasni, karma masuri, IGKV R1, IGKV R2, IGKV R 1244	Rice- Pulses/oilseeds		
		Rice-Wheat	Rice- Pulses/oilseeds		
		Cropping system 3:			

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]**
Paddy	Provision of drainage; if rains are intense	Provision of drainage; if rains are	Provision of	Provision of drainage; if

Pulses & oilseeds	Provision of drainage; if rains are intense	intense	drainage; if rains are intense	rains are intense
Wheat	Provision of drainage; if rains are intense			
Crop4:				
Crop5:				
Horticulture (Vegetables)				
Tomato	Drain out-excess water & gap filling	Drain out-excess water and spray the plano fix @ 10 ppm to control the flower drop	Drain out-excess water staking the plants and picking the fruit	Drain out-excess water keep the produce in shed at higher elevation and cover with plastic sheets
Brinjal	Drain out-excess water & gap filling			
Bhindi	Drain out-excess water & gap filling			
Cauliflower	Drain out-excess water & gap filling			
Cabbage	Drain out-excess water & gap filling			
Fruits				
Mango	Drain out-excess water & gap filling	Drain out excess water and spray the planofix @ 10 ppm to control the flower drops	Drain out excess water and picking the fruits at pre-maturity stage	excess water keep the produce in shed at higher elevation & cover it with plastic sheet and fruits may the used for pickle, jam, jelly & as vegetable
Guava	Drain –out excess water & gap filling			
Citrus	Drain –out excess water & gap filling			
Papaya	Drain –out excess water & gap filling			
Banana	Drain –out excess water & gap filling			
Heavy rainfall with high speed winds in a short span[2]				
Paddy	Provision of drainage	Provision of drainage	drainage	drainage
Pulses & oilseeds	Provision of drainage	Provision of drainage	drainage	drainage
Horticulture				
Tomato	Drain out-excess water & gap filling & Staking the plants	Drain out-excess water and spray the plano fix @ 10 ppm to control the flower drop	Drain out-excess water	Drain out-excess water and keep the produce in shed at higher elevation
Brinjal				

Bhindi				and cover with plastic sheets
Cauli flower				
Cabbage				
Mango	Drain out-excess water & gap filling & Staking the plant	Drain out excess water and spray the planofix @ 10 ppm to control the flower drops	Drain out excess water and picking the fruits at pre-maturity stage & collect the fallen fruits	Drain out the excess water keep the produce in shed at higher elevation & cover it with plastic sheet and fruits may the used for pickle, jam, jelly & as vegetable
Guava				
Citrus				
Papaya				
Banana				
Outbreak of pests and diseases due to unseasonal rains				
Rice (rain fed)	Cut worm, army worm (swarming caterpillar) (i) Insect-pest monitoring(ii) clean cultivation in crop field along with bunds (iii) Collection and destruction of egg mass (iv) Soil trenching/mechanical barrier all along the infested fields (iv) Use of chlorpyriphos/fenvalerate dusts @ 20-25 kg/ha.	Gundhi bug (i) Spray of chlorpyriphos/malathion @ 02 ml./lr. on the inested crop	Army worm (i) Field flooding with water (i) Spraying of mixture of malathion (01 ml/lr) and dichlorovos (0.5 ml/lr).	-
Rice (transplanted)	Cut worm, army worm (swarming caterpillar) (i) Insect-pest monitoring(ii) clean cultivation in crop field along with bunds (iii) Collection and destruction of egg mass (iv) Soil trenching/mechanical barrier all along the infested fields (iv) Use of chlorpyriphos/fenvalerate dusts @ 20-25 kg/ha.	Gundhi bug (i) Spray of chlorpyriphos/malathion @ 02 ml./lr. on the inested crop	Army worm (i) Field flooding with water (i) Spraying of mixture of malathion (01 ml/lr) and dichlorovos (0.5 ml/lr).	-
Soybean	Foliage feeders (larval pest) (i)Weekly collection and destruction of egg masses and tiny larvae along with the leaves (ii)	Foliage feeders (larval pest) (i)Weekly collection and destruction of egg masses and	-	-

	Spraying of Triazophos @ 2 ml./lr of water	tiny larvae along with the leaves (ii) Spraying of Triazophos @ 2 ml./lr of water		
Maize	Stem borer (i) collection and destruction of dead hearts along with larva (ii) Use of carbofuran 4 – 5granules in the each leaf whorl	-	-	-
Pigeon pea	Jassid and foliage feeding insects (i) spraying of monocrotophos @ 1.11 ml./lr. of water.	Pod borer complex (i) weeklt collection and destruction of larvae(ii) use of pheromone trap against *H. armigera*.(iii) Spraying of Triazophos @ 2 ml./lr or quinalphos @ 02ml. of water	-	-
Groundnut	Jassid and foliage feeding insects (i) spraying of monocrotophos @ 1.11 ml./lr. of water.	-	-	-
Sesame	Jassid and foliage feeding insects (i) spraying of monocrotophos @ 1.11 ml./lr. of water.			
Moong/urd	White fly (i) Acetameprid @ 0.20 g/lr or dimethate @ 1ml./lr. of water.			
Horticulture				
Tomato	Drain out excess water Drenching with fungicide to control wilt & damping off.	Drain out-excess water and spray the plano fix @ 10 ppm to control the flower drop	Drain out-excess water and drenching with fangicide to control wilt	NIL
Brinjal				
Bhindi				
Cauli flower				
Cabbage				

Fruit Crops				
Mango	Drain out-excess water Drenching with fangicide to control rotting	Drain out-excess water Spray 0.2 % wt sulpher powder to control powdery miedew, Spray 0.5 % copper oxy chloride to control citrus canker in citrus spp	Drain out excess water and picking the fruits at pre-maturity stage	NIL
Guava				
Citrus				
Papaya				
Banana				

2.3 Floods

Condition	**Suggested contingency measure[o]**			
Transient water logging/ partial inundation[1]	**Seedling / nursery stage**	**Vegetative stage**	**Reproductive stage**	**At harvest**
Paddy	Provision of drainage	Provision of drainage	Provision of drainage	Provision of drainage
Kharif oil seeds & pulses	Provision of drainage	Provision of drainage	Provision of drainage	Provision of drainage
Continuous submergence for more than 2 days[2]				
Paddy	Provision of drainage/ growing of tolerant varieties like; Pankaj	Provision of drainage	Provision of drainage	Provision of drainage

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

Extreme event type	**Suggested contingency measure[r]**			
	Seedling / nursery stage	**Vegetative stage**	**Reproductive stage**	**At harvest**
Heat Wave[p]				
Paddy	Situation doesn't arise in *Kharif* rice		Irrigation/ impounding a thin layer of water only in *boro* rice	-
Wheat	Situation doesn't arise in this stage		Irrigation	
Summer pulses & oilseeds	Situation doesn't arise in this stage		Light irrigation	

Cold wave[q]				
Crop1	Doesn't prevail in the region			
Crop2				
Horticulture				
Tomato	Irrigate the nursery frequently and protect the seedling by temporary shed	Irrigate the crop and use of mulches	Irrigate the crop and use of mulches	Picking the produce & keep in shed
Brinjal				
Cali flower				
Knoolkhol				
Cabbage				
Fruit Crops				
Crop 1 : Mango	Irrigate the nursery frequently and protect the seedling by temp shed and use mulches	Irrigate the crop and use of mulches	Irrigate the crop and use of mulches	Picking the fruits & keep in shed
Crop 2 : Guava				
Crop 3 : Citrus				
Crop 4 : Papaya				
Crop 5 : Banana				
Hailstorm				
Wheat	Re-sowing under irrigated conditions		Plough the field for green manuring & sowing of summer crop under irrigated conditions	Picking of ear heads
Crop2				
Horticulture				
Crop1 (specify)				
Crop2				
Crop3				
Cyclone				
Paddy	Provision of drainage		Provision of drainage	Provision of drainage
Wheat	Provision of drainage		Provision of drainage	Provision of drainage