

State: CHHATTISGARH

Agriculture Contingency Plan for District: Dhamtari

1.0 District Agriculture profile				
1.1	Agro-Climatic/Ecological Zone			
	Agro Ecological Sub Region (ICAR)	Chhattisgarh/Mahanadi Basin Agro-eco region (11.0) (J3(Cd/Cm)5		
	Agro-Climatic Zone (Planning Commission)	Zone-7 Eastern plateau and hills		
	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, Dhamtari, Mahasamund, Kanker (11 districts)		
	Geographic coordinates of district headquarters	Latitude	Longitude	Altitude
		21°15' N	81°41' E	289 m
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS	Zonal Agricultural Research Station, Raipur 492006 (C.G.)		
	Mention the KVK located in the district with address	Dr. S.S. Chandrawanshi, Programme Coordinator, KVK, Dhamtari 07722-219130 94255-16368, E_mail ID: kvkdhamtari@yahoo.com		
	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.)		

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):	1035.0	48	3 rd week of June	4 th week of September
	NE Monsoon(Oct-Dec):	73.9	4	Post monsoon (October-December)	-
	Winter (Jan- March)	42.3	4	Winter rains	-
	Summer (Apr-May)	45.9	3	-	-
	Annual	1197.1	59	-	-

1.3	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.)
	Dhamtari	408.2	135.4	83.1	155.9	71%	218.4

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

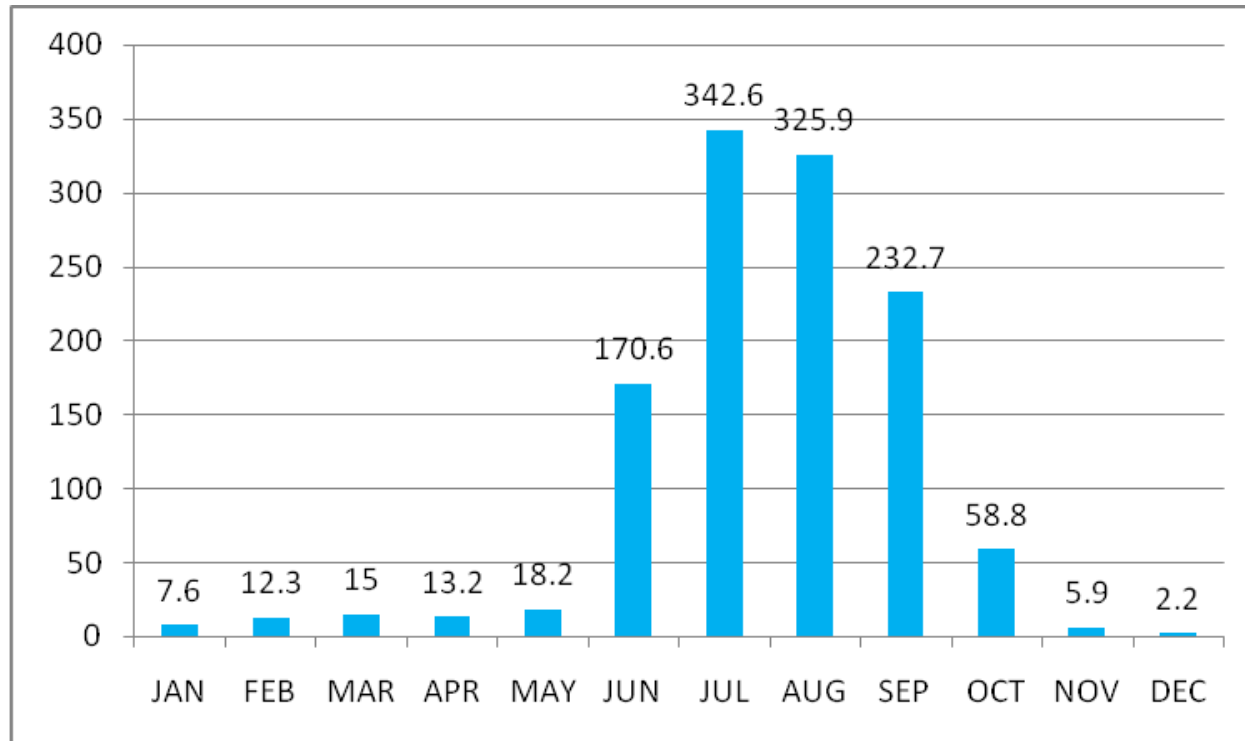
Annexure I

Location map of district within State



Annexure II

Mean annual rainfall (mm)



2.0 Strategies for weather related contingencies

2.1 Drought

2.1.1 Rainfed situation

Condition	Major Farming situation ^a	Normal Crop / Cropping system ^b		Suggested Contingency measures			Remarks on Implementation ^e
				Change in crop / cropping system ^c including variety		Agronomic measures ^d	
		Kharif	Rabi	Kharif	Rabi		
Early season drought: Delay by 2 weeks (July 1st wk)	Unbunded upland Bharri	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)		No change		Normal	
		Mung	Horsegram/ Niger	No change		Normal	
		Black gram	Horsegram/ Niger	No change		Normal	
		Groundnut		No change		Normal	
		Sesame		No change		Normal	
		Maize- Hishell, P 3785, Bio 9681, 900M, Seedtech 2324, Pro 4640, DMH 117, Pro Agro- 4212 PEM 1 , VH -9,17HQPM-		No change		Normal	

Condition	Major Farming situation ^a	Normal Crop / Cropping system ^b		Suggested Contingency measures				
				Change in crop / cropping system ^c including variety		Agronomic measures ^d	Remarks on Implementation ^e	
		Kharif	Rabi	Kharif	Rabi			
		1 NMH-731NK-30, NMH-803KMH-3426						
	Bunded upland Bharri	Rice- Purnima, Danteshwari, Samleshwari, Annada		No change		Normal		
		Rice	Horsegram	No change		Normal		
		Rice	Niger	No change		Normal		
	Midland Inceptisol (Matasi-Sandy loam)	Rice- MTU1010, IR64, IR 36, Indira Barani Dhan 1, Chandrahasni, Samleshwari		No change		1. Direct dry seeding in line technique suggested for better crop yield and double cropping 2. Line sowing to avoid mortality of germinating seed in case drought follows after scanty rainfall events	Linkage with RKVY for supply of tractor and animal drawn seed drill for line sowing	
				No change				
	Shallow Lowland Alfisols (Dorsa-clayloam or Vertisols (Kanhar-clayey))	Rice-Mahamaya, s swarna, Sampda, IGKV R1, IGKV R2, Bamleshwari, Indira Sona		No change		3. Promote application of post emergence herbicide for timely weed management and avoiding biasi operation		
		Rice	Lathyrus/ linseed/gram/ mung (relay)	No change				
		Rice	Lentil	No change				
		Rice	Gram	No change				
		Rice	Linseed	No change				
		Rice	Safflower	No change				
	Bahra lowland Vertisols (Kanhar-clayey)	Rice- Swarna, Swarna sub1, Jaldubi, Bamleshwari, MTU 1001, IGKV R 1244	Fallow	No change				
		Rice	Lathyrus/	No change				

Condition	Major Farming situation ^a	Normal Crop / Cropping system ^b		Suggested Contingency measures				
				Change in crop / cropping system ^c including variety		Agronomic measures ^d	Remarks on Implementation ^e	
		Kharif	Rabi	Kharif	Rabi			
			linseed/gram/mung (relay)					
		Rice	Wheat	No change				
		Rice	Mung	No change				
Early season drought: Delay by 4 weeks (July 3rd wk)	Unbunded upland Bharri	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)				25 % higher seed rate		
						-do-		
		Mung	Hoursegram/Niger				-do-	
		Urid	Hoursegram/Niger				-do-	
		Groundnut		Erect variety GG-5/G-20			-do-	
		Sesamum					-do-	
		Bundeded upland Bharri	Rice - Purnima, Danteshwari, Samleshwari, Annada Maize- Hishell, P 3785, Bio 9681, 900M, Seedtech 2324, Pro 4640, DMH 117, Pro Agro- 4212 PEM 1		Rice- Tulsi, Indira barani dhan-1, Annda, Anjali			

Condition	Major Farming situation ^a	Normal Crop / Cropping system ^b		Suggested Contingency measures			
				Change in crop / cropping system ^c including variety		Agronomic measures ^d	Remarks on Implementation ^e
		Kharif	Rabi	Kharif	Rabi		
		, VH -9,17HQPM-1 NMH-731NK-30, NMH-803KMH-3426					
		Rice	Horsegram	Groundnut			
		Rice	Niger	Sesamum/soybean(Indira soy9, JS93-05, JS335, JS80-21)			
	Midland Inceptisol (Matasi-Sandy loam)	Rice- MTU1010, IR64, IR 36, Indira Barani Dhan 1, Chandrahasni, Samleshwari		Rice- MTU1010, Samleshwari, Danteshwari, Indira barani dhan-1		<ul style="list-style-type: none"> •Direct dry seeding in line technique suggested for better crop yield and double cropping •Line sowing to avoid mortality of germinating seed in case drought follows after scanty rainfall events •Promote application of post emergence herbicide for timely weed management and avoiding biasi operation 	<ul style="list-style-type: none"> •Linkage with RKVY for supply of tractor and animal drawn seed drill for line sowing •Linkage with MNREGA for WC measures: Digging of shallow dug wells and renovation of existing WHSs
	Shallow Lowland Alfisols (Dorsa-clay loam) or Vertisols (Kanhar-clayey)	Rice-Mahamaya, s swarna, Sampda, IGKV R1, IGKV R2, Bamleshwari, Indira Sona		Rice- MTU1010, IR64, IR 36, Indira Barani Dhan 1, Chandrahasni, Samleshwari			
		Rice	Lathyrus/ linseed/gram/ mung (relay)	Rice- Chandrahasni IR64, Mahamaya, Bamleshwari, karma masuri	Coriander (leaf), toria, Lathyrus/ linseed/ mung (relay)		
		Rice	Lentil		Lentil		
		Rice	Gram		Gram		
		Rice	Linseed		Linseed		
		Rice	Safflower		Coriander (leaf), toria		
	Bahra lowland Vertisols (Kanhar-clayey)	Rice- Swarna, Swarna sub1, Jaldubi, Bamleshwari, MTU 1001, IGKV R 1244	Fallow	Rice- Mahamaya, swarna, Sampda, IGKV R1, IGKV R2, IGKV R 1244	Fallow		

Condition	Major Farming situation ^a	Normal Crop / Cropping system ^b		Suggested Contingency measures			
				Change in crop / cropping system ^c including variety		Agronomic measures ^d	Remarks on Implementation ^e
				Kharif	Rabi		
			Lathyrus/ linseed/gram/ mung (relay)		Coriander (leaf), toria, Lathyrus/ linseed/ mung (relay)		
			Wheat		Wheat		
			Mung		Mung		
Early season drought: Delay by 6 weeks (Aug. 1st wk)	Unbunded upland Bharri	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)		Hoursegram/ Niger		25 % higher seed rate	
				Hoursegram/ Niger		-do-	
		Mung	Hoursegram/ Niger	Mung/ urid		-do-	
		Urid	Hoursegram/ Niger	Mung		-do-	
		Groundnut		Urid(PTU4, TU94-2, pant-U31, KU96-3, TAU2)		-do-	
		Sesamum		Mung		-do-	
	Bunded upland Bharri	Rice- Purnima, Danteshwari, Samleshwari, Annada Maize- Hishell, P 3785, Bio 9681,		Rice- Purnima, Tulsi, Indira barani dhan-1, Aditya, Anjali		Sowing of sprouted seed (<i>lai-chaupa</i>)adopting lehi method of rice cultivation	

Condition	Major Farming situation ^a	Normal Crop / Cropping system ^b		Suggested Contingency measures			
				Change in crop / cropping system ^c including variety		Agronomic measures ^d	Remarks on Implementation ^e
				Kharif	Rabi		
		900M, Seedtech 2324, Pro 4640, DMH 117, Pro Agro- 4212 PEM 1 , VH -9,17HQPM-1 NMH-731NK-30, NMH-803KMH-3426					
		Rice	Horsegram	Pigeonpea		Mixed or intercropping of pigeonpea and mung (4:2)	
		Rice	Niger	Sesamum		Mixed or intercropping of sesamum and mung (4:2)	
				Groundnut		-do-	
	Midland Inceptisol (Matasi-Sandy loam)	Rice- MTU1010, IR64, IR 36, Indira Barani Dhan 1, Chandrahasni, Samleshwari		Rice- Indira barani dhan-1, Samleshwari, Danteshwari, Purnima		<ul style="list-style-type: none"> •Direct dry seeding in line technique suggested for better crop yield and double cropping •Promote direct seeding or rice and discourage transplanting •Sowing of sprouted seed (<i>lai-chaupa</i>)adopting lehi method of rice cultivation •Line sowing to avoid mortality of germinating seed in case drought follows after scanty rainfall events •Promote application of post emergence herbicide for timely weed management and 	<ul style="list-style-type: none"> •Linkage with RKVY for supply of tractor and animal drawn seed drill for line sowing •Linkage with MNREGA for WC measures: Digging of shallow dug wells and renovation of existing WHSs •Utilize harvested rain water of WHS in crop production by adopting drip
	Shallow Lowland Alfisols (Dorsa-clay loam) or Vertisols (Kanhar-clayey)	Rice-Mahamaya, s swarna, Sampda, IGKV R1, IGKV R2, Bamleshwari, Indira Sona		Rice- MTU1010, IR64, IR 36, Indira Barani Dhan 1, Chandrahasni, Samleshwari			
		Rice	Lathyrus/ linseed/gram/ mung (relay)	Rice- IR64, Chandrahasni Bamleshwari, karma masuri	Coriander (leaf), toria, linseed/ mung (relay)		
		Rice	Lentil		Lentil		
		Rice	Gram		Gram		
		Rice	Linseed		Linseed		
		Rice	Safflower		Coriander (leaf), toria		
	Bahra lowland Vertisols	Rice- Swarna, Swarna sub1,	Fallow	Rice- Mahamaya, Sampda, IGKV R1,	Fallow		

Condition	Major Farming situation ^a	Normal Crop / Cropping system ^b		Suggested Contingency measures			
				Change in crop / cropping system ^c including variety		Agronomic measures ^d	Remarks on Implementation ^e
				Kharif	Rabi		
	(Kanhar-clayey)	Jaldubi, Bamleshwari, MTU 1001, IGKV R 1244		IGKV R2, IGKV R 1244		avoiding biasi operation • Increase 25percent seed rate of rabi crops. • Seed rate of wheat may be increased from one-and half to two times • Sowing of rabi crops adopting zero tillage technique	system or sprinklers that may be converged from micro irrigation scheme of Agriculture Department
			Lathyrus/ linseed/gram/ mung (relay)		Coriander (leaf), toria, Lathyrus/ linseed/ mung (relay)		
			Wheat		Wheat		
			Mung		Mung		
Early season drought: Delay by 8 weeks (Aug. 3 rd wk)	Unbunded upland Bharri	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)			Hoursegram/ Niger	Sowing in line or broadcasting in September	
					Hoursegram/ Niger	Sowing in line or broadcasting in September	
		Mung	Hoursegram/ Niger	Mung		25 % higher seed rate	
		Urid	Hoursegram/ Niger	Mung		25 % higher seed rate	
		Groundnut		Mung		25 % higher seed rate	
	Sesamum		Mung		25 % higher seed rate		
	Bundeded upland	Rice- Purnima, Danteshwari,		Mung(pusa vishal, pragy, Hum1,		Mixed or intercropping of pigeonpea and mung (4:2)	

Condition	Major Farming situation ^a	Normal Crop / Cropping system ^b		Suggested Contingency measures			
				Change in crop / cropping system ^c including variety		Agronomic measures ^d	Remarks on Implementation ^e
				Kharif	Rabi		
	Bharri	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		pairimung) Pigeonpea(ICPL87, Rajivlochan. Maruti)		or sesamum and mung (4:2)	
		Rice	Hoursegram		Hoursegram	Sowing in line or broadcasting in September	
		Rice	Niger		Niger/mung	Sowing in line or broadcasting in September	
	Midland Inceptisol (Matasi-Sandy loam)	Rice- MTU1010, IR64, IR 36, Indira Barani Dhan 1, Chandrahasni, Samleshwari		Rice- Indira barani dhan-1, Samleshwari, Danteshwari, purnima		<ul style="list-style-type: none"> •Promote direct Line seeding of rice and discourage transplanting •Sowing of sprouted seed (<i>lai-chaupa</i>)adopting lehi method of rice cultivation •Promote application of post emergence herbicide for timely weed management and avoiding biasi operation •Increase 25percent seed rate of <i>rabi</i> crops. •Seed rate of wheat increased from one-and half to two times •Sowing of <i>rabi</i> crops 	<ul style="list-style-type: none"> •Linkage with RKVY for supply of tractor and animal drawn seed drill for line sowing •Linkage with MNREGA for WC measures: Digging of shallow dug wells and renovation of existing WHSs •Utilize harvested rain water of WHS in crop
	Shallow Lowland Alfisols (Dorsa-clay loam) or Vertisols (Kanhar-clayey)	Rice-Mahamaya, s swarna, Sampda, IGKV R1, IGKV R2, Bamleshwari, Indira Sona		Rice- MTU1010, IR64, IR 36, Indira Barani Dhan 1, Chandrahasni, Samleshwari			
		Rice	Lathyrus/ linseed/gram/ mung (relay)	Rice- IR64, Chandrahasni Bambleshwari, karma masuri			
		Rice	Lentil		Lentil		
		Rice	Gram		Gram		
		Rice	Linseed		Linseed		
		Rice	Safflower		Fieldpea/ Coriander		

Condition	Major Farming situation ^a	Normal Crop / Cropping system ^b		Suggested Contingency measures			
				Change in crop / cropping system ^c including variety		Agronomic measures ^d	Remarks on Implementation ^e
				Kharif	Rabi		
					(leaf)/ toria		
	Bahra lowland Vertisols (Kanhar-clayey)	Rice- Swarna, Swarna sub1, Jaldubi, Bamleshwari, MTU 1001, IGKV R 1244	Fallow	Rice- Mahamaya, Sampda, IGKV R1, IGKV R2, IGKV R 1244	Fallow	adopting zero tillage technique	production by adopting drip system or sprinklers that may be converged from micro irrigation scheme of Agriculture Department
			Lathyrus/ linseed/gram/ mung (relay)				
			Wheat		Wheat		
			Mung		Mung/ Fieldpea /Coriander (leaf)/ toria		

Normal onset of monsoon, mid season-vegetative stage and terminal drought

Condition	Major Farming situation ^a	Normal Crop / Cropping system ^b	Suggested Contingency measures		
			Crop management	Soil nutrient & moisture conservation measures ^d	Remarks on Implementation ^e
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc.	Unbunded upland Bharri	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)	<ul style="list-style-type: none"> ▪ Gap filling ▪ Resowing in line when very poor population 	<ul style="list-style-type: none"> • Inter tilling for soil mulch • Mulching with paddy straw or use plastic mulch or other locally available material • Compartmental bunding, Ridge and Furrows, Tied ridges 	<ul style="list-style-type: none"> • Linkage with RKVY / NFSM / state seed corporation for timely supply of seed of suitable varieties of upland crops and rice
		Mung /Urid and rabi Horsegram/ Niger			
		Groundnut /Sesamum			
	Bunded upland	Rice- Purnima, Danteshwari,			

Condition	Major Farming situation ^a	Normal Crop / Cropping system ^b	Suggested Contingency measures		
			Crop management	Soil nutrient & moisture conservation measures ^d	Remarks on Implementation ^e
	Bharri	Samleshwari, Annada		to conserve rainwater during kharif for regular sowing of rabi crops	
		Rice and rabi Hoursegram/ Niger			
		Mung(pusa vishal, Hum1)			
	Midland Inceptisol (Matasi-Sandy loam)	Rice- MTU1010, IR64, IR 36, Indira Barani Dhan 1, Chandrahasni, Samleshwari	<ul style="list-style-type: none"> • Gap filling or • Resowing of dry seed 		
	Shallow Lowland Alfisols (Dorsa-clay loam) or Vertisols (Kanhar-clayey)	Rice-Mahamaya, s swarna, Sampda, IGKV R1, IGKV R2, Bamleshwari, Indira Sona	<ul style="list-style-type: none"> • Gap filling • Sowing of sprouted seed (<i>lai-chaupa</i>) adopting lehi method of rice cultivation • Sowing of relatively early varieties like IR64, Chandrahasni Bamleshwari, karma masuri 		
Rice- Lathyrus/ linseed/gram/ mung (relay)					
Rice- lentil/gram/linseed/ safflower/ fieldpea					
Bahra lowland Vertisols (Kanhar-clayey)	Rice- Swarna, Swarna sub1, Jaldubi, Bamleshwari, MTU 1001, IGKV R 1244	<ul style="list-style-type: none"> • Gap filling • Sowing of sprouted seed (<i>lai-chaupa</i>) adopting lehi method of rice cultivation • Sowing of relatively early varieties like Mahamaya, swarna sub1, Jaldubi, masuri 			
	Rice- Lathyrus/ linseed/gram/ mung (relay)				
	Rice-wheat/ mung				
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period): At vegetative stage	Unbunded upland Bharri	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)	Weeding and protection against sucking pests	<ul style="list-style-type: none"> • Inter tilling for soil mulch • Mulching with paddy straw or use plastic mulch or other locally available material 	<ul style="list-style-type: none"> • Linkage with Agriculture Department /RKVY for supply of interculture implements for interculture in
		Mung /Urid and rabi Hoursegram/	Weeding and protection		

Condition	Major Farming situation ^a	Normal Crop / Cropping system ^b	Suggested Contingency measures			
			Crop management	Soil nutrient & moisture conservation measures ^d	Remarks on Implementation ^e	
	Major Farming situation ^a	Niger	against sucking pests		upland crops	
		Groundnut /Sesamum	Avoid top dressing of urea			
		Bundeded upland Bharri	Rice- Purnima, Danteshwari, Samleshwari, Annada			Weeding and protection against insect and pests
	Rice and rabi Hoursegram/ Niger					
		Mung (pusa vishal, Hum1)	Weeding and protection against insect and pests	<ul style="list-style-type: none"> • Weeding and protection against insect and pests • Avoid top dressing of urea • Supplemental irrigation from water harvesting structures using micro irrigation i.e. drip and sprinklers 	<ul style="list-style-type: none"> • Compartmental bunding, Ridge and Furrows, Tied ridges to conserve rainwater during kharif for regular sowing of rabi crops • Sowing of rabi crops adopting zero tillage technique 	<ul style="list-style-type: none"> • Linkage with micro irrigation scheme of Agriculture Department for supply of drip system and sprinklers
	Midland Inceptisol (Matasi-Sandy loam)	Rice- MTU1010, IR64, IR 36, Indira Barani Dhan 1, Chandrahasni, Samleshwari				
	Shallow Lowland Alfisols (Dorsa-clay loam) or Vertisols (Kanhar-clayey)	Rice-Mahamaya, s swarna, Sampda, IGKV R1, IGKV R2, Bamleshwari, Indira Sona				
		Rice- Lathyrus/ linseed/gram/ fieldpea mung (relay)				
		Rice-lentil/ gram/ linseed/ safflower				
	Bahra lowland Vertisols (Kanhar-clayey)	Rice- Swarna, Swarna sub1, Jaldubi, Bamleshwari, MTU 1001, IGKV R 1244				
Rice- Lathyrus/ linseed/gram/ mung (relay)						
Rice- wheat/ mung						
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period): At flowering/ fruiting stage	Unbundeded upland Bharri	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)	Weeding and protection against insect and pests	Mulching Inter tilling	<ul style="list-style-type: none"> • Linkage with Agriculture Department /RKVY for supply of interculture implements for interculture in upland crops 	
		Mung /Urid and rabi Hoursegram/ Niger				
		Groundnut /Sesamum				
	Bundeded upland Bharri	Rice- Purnima, Danteshwari, Samleshwari, Annada				

Condition	Major Farming situation ^a	Normal Crop / Cropping system ^b	Suggested Contingency measures		
			Crop management	Soil nutrient & moisture conservation measures ^d	Remarks on Implementation ^e
		Rice and rabi Hoursegram/ Niger			
		Mung (pusa vishal, , Hum1)			
	Midland Inceptisol (Matasi-Sandy loam)	Rice- MTU1010, IR64, IR 36, Indira Barani Dhan 1, Chandrahasni, Samleshwari	<ul style="list-style-type: none"> • Weeding and protection against insect and pests • Supplemental irrigation from water harvesting structures using micro irrigation i.e. drip and sprinklers 	<ul style="list-style-type: none"> • Compartmental bunding, Ridge and Furrows, Tied ridges to conserve rainwater during kharif for regular sowing of rabi crops • Increase 25percent seed rate of rabi crops. • Seed rate of wheat increased from one-and half to two times • Sowing of rabi crops adopting zero tillage technique 	<ul style="list-style-type: none"> • Linkage with micro irrigation scheme of Agriculture Department for supply of drip system and sprinklers
	Shallow Lowland Alfisols (Dorsa-clay loam) or Vertisols (Kanhar-clayey)	Rice-Mahamaya, s swarna, Sampda, IGKV R1, IGKV R2, Bamleshwari, Indira Sona			
		Rice- Lathyrus/ linseed/gram/ fieldpea			
		mung (relay)			
		Rice-lentil/ gram/ linseed/ safflower			
	Bahra lowland Vertisols (Kanhar-clayey)	Rice- Swarna, Swarna sub1, Jaldubi, Bamleshwari, MTU 1001, IGKV R 1244			
		Rice- Lathyrus/ linseed/gram/ mung (relay)			
		Rice- wheat/ mung			
Terminal drought (Early withdrawal of monsoon)	Unbunded upland Bharri	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)	Harvest mature plants Thin out plant population	Mulching Inter tilling	<ul style="list-style-type: none"> • Linkage with Agriculture Department /RKVY for supply of interculture implements for interculture in upland crops
		Mung /Urid and rabi Hoursegram/ Niger			
		Groundnut /Sesamum			
	Bunded upland Bharri	Rice- Purnima, Danteshwari, Samleshwari, Annada	Life saving irrigation if available		
		Rice and rabi Hoursegram/ Niger			
Mung (pusa vishal, Hum1)		Harvest mature plants Thin out plant population			

Condition	Major Farming situation ^a	Normal Crop / Cropping system ^b	Suggested Contingency measures		
			Crop management	Soil nutrient & moisture conservation measures ^d	Remarks on Implementation ^e
	Midland Inceptisol (Matasi-Sandy loam)	Rice- MTU1010, IR64, IR 36, Indira Barani Dhan 1, Chandrahasni, Samleshwari	<ul style="list-style-type: none"> • Weeding and protection against insect and pests • Supplemental irrigation from water harvesting structures using micro irrigation i.e. drip and sprinklers 	<ul style="list-style-type: none"> • Compartmental bunding, Ridge and Furrows, Tied ridges to conserve rainwater during kharif for regular sowing of rabi crops • Seed rate of wheat increased from one-and half to two times • Sowing of rabi crops adopting zero tillage technique 	<ul style="list-style-type: none"> • Linkage with micro irrigation scheme of Agriculture Department for supply of drip system and sprinklers
	Shallow Lowland Alfisols (Dorsa-clay loam) to Vertisols (Kanhar-clayey)	Rice-Mahamaya, s swarna, Sampda, IGKV R1, IGKV R2, Bamleshwari, Indira Sona			
		Rice- Lathyrus/ linseed/gram/ fieldpea			
		mung (relay)			
		Rice-lentil/ gram/ linseed/ safflower			
	Bahra lowland Vertisols (Kanhar-clayey)	Rice- Swarna, Swarna sub1, Jaldubi, Bamleshwari, MTU 1001, IGKV R 1244			
		Rice- Lathyrus/ linseed/gram/ mung (relay)			
		Rice- wheat/ mung			

2.1.2 Drought - Irrigated situation

Condition	Major Farming situation ^a	Normal Crop / Cropping system ^b	Suggested Contingency measures		
			Change in crop/cropping system ^h	Agronomic measures ⁱ	Remarks on Implementation ^e
Delayed release of water in canals due to low rainfall	Unbunded upland Bharri	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)	No change		<ul style="list-style-type: none"> • Linkage with RKVY / NFSM / IWMP/ micro irrigation schemes for construction of shallow tube wells and WHS including farm ponds for conjunctive use of water in canal
		Mung /Urid and rabi Horsegram/ Niger	No change		
		Groundnut /Sesamum	No change		
	Bunded upland Bharri	Rice- Purnima, Danteshwari, Samleshwari, Annada	Mung(pusa vishal, pragya, Hum1,		

Condition	Major Farming situation ^a	Normal Crop / Cropping system ^b	Suggested Contingency measures		
			Change in crop/cropping system ^h	Agronomic measures ⁱ	Remarks on Implementation ^e
		Rice and rabi Hoursegram/ Niger	pairimung) Pigeonpea(ICPL87, Rajivlochan. Maruti)		command • Compartmental bunding, Ridge and Furrows, Tied ridges to conserve rainwater during kharif for regular sowing of rabi crops
	Midland Inceptisol (Matasi-Sandy loam)	Rice- MTU1010, IR64, IR 36, Indira Barani Dhan 1, Chandrahasni, Samleshwari		<ul style="list-style-type: none"> • Direct seeding of rice preferably in line • In case of failure of crop or poor crop stand then Sowing of sprouted seed (<i>lai-chaupa</i>)adopting lehi method of rice cultivation • If seedlings raised for transplanting then it should be done with rainwater or from other sources of water • Weed control by herbicide and avoid biasi operation 	
	Shallow Lowland Alfisols (Dorsa-clay loam) or Vertisols (Kanhar-clayey)	Rice-Mahamaya, s swarna, Sampda, IGKV R1, IGKV R2, Bamleshwari, Indira Sona			
		Rice- Lathyrus/ linseed/gram/ mung (relay-Pragya)			
		Rice- lentil/gram/linseed/ safflower/ fieldpea			
	Bahra lowland Vertisols (Kanhar-clayey)	Rice- Swarna, Swarna sub1, Jaldubi, Bamleshwari, MTU 1001, IGKV R 1244			
		Rice- Lathyrus/ linseed/gram/ mung (relay)			
		Rice-wheat/ mung			
Limited release of water in canals due to low rainfall	Unbunded upland Bharri	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)	No change		<ul style="list-style-type: none"> • Linkage with RKVY / NFSM / IWMP/ micro irrigation schemes for construction of shallow tube wells and WHS including farm ponds for conjunctive use of water in canal command • Linkage with RKVY / NFSM / IWMP/ micro irrigation schemes
		Mung /Urid and rabi Hoursegram/ Niger	No change		
		Groundnut /Sesamum	No change		
	Bunded upland Bharri	Rice- Purnima, Danteshwari, Samleshwari, Annada	Mung(pusa vishal, pragya, Hum1, pairimung)		
		Rice and rabi Hoursegram/ Niger	Pigeonpea(ICPL87, Rajivlochan. Maruti)		
	Midland Inceptisol	Rice- MTU1010, IR64, IR 36, Indira Barani Dhan 1,	Rice- Indira barani dhan-1, Samleshwari,	<ul style="list-style-type: none"> • Direct seeding of rice 	

Condition	Major Farming situation ^a	Normal Crop / Cropping system ^b	Suggested Contingency measures			
			Change in crop/cropping system ^h	Agronomic measures ⁱ	Remarks on Implementation ^e	
	(Matasi-Sandy loam)	Chandrasahni, Samleshwari	Danteshwari, purnima	preferably dry seeding in line • In case of failure of crop or poor crop stand then Sowing of sprouted seed (<i>lai-chaupa</i>) adopting lehi method of rice cultivation • Avoid transplanting of rice • Weed control by herbicide and avoid biasi operation	for supply of micro irrigation systems	
	Shallow Lowland Alfisols (Dorsa-clay loam) or Vertisols (Kanhar-clayey)	Rice-Mahamaya, s swarna, Sampda, IGKV R1, IGKV R2, Bamleshwari, Indira Sona	Rice- MTU1010, IR64, IR 36, Indira Barani Dhan 1, Chandrasahni, Samleshwari			
		Rice- Lathyrus/ linseed/gram/ mung (relay-Pragya)				
		Rice- lentil/gram/linseed/ safflower/ fieldpea				
	Bahra lowland Vertisols (Kanhar-clayey)	Rice- Swarna, Swarna sub1, Jaldubi, Bamleshwari, MTU 1001, IGKV R 1244	Rice- Mahamaya, swarna, Sampda, IGKV R1, IGKV R2, IGKV R 1244			
		Rice- Lathyrus/ linseed/gram/ mung (relay)				
Rice-wheat/ mung						
Non release of water in canals under delayed onset of monsoon in catchment	Unbunded upland Bharri	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)	No change	• Linkage with RKVY / NFSM / IWMP/ micro irrigation schemes for construction of shallow tube wells and WHS including farm ponds for conjunctive use of water in canal command • Linkage with RKVY / NFSM / IWMP/ micro irrigation schemes for supply of micro irrigation systems		
		Mung /Urid and rabi Hoursegram/ Niger	No change			
		Groundnut /Sesamum	No change			
	Bunded upland Bharri	Rice- Purnima, Danteshwari, Samleshwari, Annada	Mung(pusa vishal, pragya, Hum1, pairimung) Pigeonpea(ICPL87, Rajivlochan. Maruti)			
		Rice and rabi Hoursegram/ Niger				
	Midland Inceptisol (Matasi-Sandy loam)	Rice- MTU1010, IR64, IR 36, Indira Barani Dhan 1, Chandrasahni, Samleshwari	Rice- Indira barani dhan-1, Samleshwari, Danteshwari, purnima		• Direct seeding of rice preferably dry seeding in line • Avoid transplanting of rice	
	Shallow Lowland Alfisols	Rice-Mahamaya, s swarna, Sampda, IGKV R1, IGKV	Rice- MTU1010, IR64, IR 36, Indira Barani			

Condition	Major Farming situation ^a	Normal Crop / Cropping system ^b	Suggested Contingency measures		
			Change in crop/cropping system ^h	Agronomic measures ⁱ	Remarks on Implementation ^e
	(Dorsa-clay loam) or Vertisols (Kanhar-clayey)	R2, Bamleshwari, Indira Sona	Dhan 1, Chandrahasni, Samleshwari	<ul style="list-style-type: none"> • Weed control by herbicide and avoid biasi operation • Supplemental irrigation from WHS using drip and sprinklers • Adopt zero tillage technique for sowing of rabi crops 	
		Rice- Lathyrus/ linseed/gram/ mung (relay- Pragya)			
		Rice- lentil/gram/linseed/ safflower/ fieldpea			
	Bahra lowland Vertisols (Kanhar-clayey)	Rice- Swarna, Swarna sub1, Jaldubi, Mahamaya, Indira sona, Bamleshwari, MTU 1001	Rice- Mahamaya, swarna, Sampda, IGKV R1, IGKV R2, IGKV R 1244		
		Rice- Lathyrus/ linseed/gram/ mung (relay)			
		Rice-wheat/ mung			
Lack of inflows into tanks due to insufficient /delayed onset of monsoon	Unbunded upland Bharri	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)	No change	<ul style="list-style-type: none"> • Linkage with RKVY / NFSM / IWMP/ micro irrigation schemes for construction of shallow tube wells and WHS including farm ponds for conjunctive use of water in canal command • Linkage with RKVY / NFSM / IWMP/ micro irrigation schemes for supply of micro irrigation systems 	
		Mung /Urid and rabi Hoursegram/ Niger	No change		
	Bunded upland Bharri	Rice- Purnima, Danteshwari, Samleshwari, Annada	Mung(pusa vishal, pragya, Hum1, pairimung)		
		Rice and rabi Hoursegram/ Niger	Pigeonpea(ICPL87, Rajivlochan. Maruti)		
	Midland Inceptisol (Matasi-Sandy loam)	Rice- MTU1010, IR64, IR 36, Indira Barani Dhan 1, Chandrahasni, Samleshwari	Rice- Indira barani dhan-1, Samleshwari, Danteshwari, purnima		<ul style="list-style-type: none"> • Direct seeding of rice preferably dry seeding in line • Avoid transplanting of rice
	Shallow Lowland Alfisols (Dorsa-clay loam) or Vertisols (Kanhar-clayey)	Rice- Mahamaya, swarna, Sampda, IGKV R1, IGKV R2, IGKV R 1244	Rice- MTU1010, IR64, IR 36, Indira Barani Dhan 1, Chandrahasni, Samleshwari		<ul style="list-style-type: none"> • Weed control by herbicide and avoid biasi operation • Supplemental
		Rice- Lathyrus/ linseed/gram/ mung (relay-Pragya)			

Condition	Major Farming situation ^a	Normal Crop / Cropping system ^b	Suggested Contingency measures		
			Change in crop/cropping system ^h	Agronomic measures ⁱ	Remarks on Implementation ^e
	Bahra lowland Vertisols (Kanhar-clayey)	Rice- Swarna, Swarna sub1, Jaldubi, Bamleshwari, MTU 1001, IGKV R 1244	Rice- Mahamaya, swarna, Sampda, IGKV R1, IGKV R2, IGKV R 1244	irrigation from WHS using drip and sprinklers • Adopt zero tillage technique for sowing of rabi crops	
		Rice- Lathyrus/ linseed/gram/ mung (relay)			
Insufficient groundwater recharge due to low rainfall	Unbunded upland Bharri	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)	No change		<ul style="list-style-type: none"> • Linkage with RKVY / NFSM / IWMP/ micro irrigation schemes for construction of shallow tube wells and WHS including farm ponds for conjunctive use of water in canal command • Linkage with RKVY / NFSM / IWMP/ micro irrigation schemes for supply of micro irrigation systems
		Mung /Urid and rabi Hoursegram/ Niger	No change		
		Groundnut /Sesamum	No change		
	Bunded upland Bharri	Rice- Purnima, Danteshwari, Samleshwari, Annada	Pigeonpea(ICPL87, Rajivlochan. Maruti)		
		Rice and rabi Hoursegram/ Niger			
	Midland Inceptisol (Matasi-Sandy loam)	Rice- MTU1010, IR64, IR 36, Indira Barani Dhan 1, Chandrahasni, Samleshwari		<ul style="list-style-type: none"> • Direct seeding of rice preferably dry seeding in line • Avoid transplanting • Weed control by herbicide and avoid biasi operation • Supplemental irrigation from WHS using drip and sprinklers 	
	Shallow Lowland Alfisols (Dorsa-clay loam) or Vertisols (Kanhar-clayey)	Rice-Mahamaya, s swarna, Sampda, IGKV R1, IGKV R2, Bamleshwari, Indira Sona			
		Rice- Lathyrus/ linseed/gram/ mung (relay)			
		Rice- lentil/gram/linseed/ safflower/ fieldpea			
	Bahra lowland Vertisols (Kanhar-clayey)	Rice- Swarna, Swarna sub1, Jaldubi, Bamleshwari, MTU 1001, IGKV R 1244			
Rice- Lathyrus/ linseed/gram/ mung (relay)					
Rice-wheat/ mung/ potato					

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

Condition	Suggested contingency measure			
	Vegetative stage ^k	Flowering stage ^l	Crop maturity stage ^m	Post harvest ⁿ
Continuous high rainfall in a short span leading to water logging or heavy rainfall coupled with high speed winds in a short span*				
Urid/ mung/ maize	Drain out excess water	Earthing up in maize	Picking of matured pods, Harvesting and drying of cobs	To cover produce with plastic sheet or shift produces to farm shed
Groundnut/ sesamum/pigeon pea	Drain out excess water	Earthing in groundnut Drain out excess water	Drain out excess water, Harvesting and drying of plants	To cover produce with plastic sheet or shift produces to farm shed
Rice	Drain excess water	Drain excess water	Drain excess water Harvest the crop and put on bunds	To cover produce with plastic sheet or shift produces to farm shed
Rabi oilseed and pulses	Drain excess water	Drain excess water	Drain excess water Harvest the crop and put on bunds	To cover produce with plastic sheet or shift produces to farm shed
Wheat	Surface drainage	Surface drainage	Surface drainage	To cover produce with plastic sheet or shift produces to farm shed To supply tarpaulin to farmers through RKVY/NFSM
Horticulture				
Tomato/ brinjal	Surface drainage, earthing and fertilizer application after water drain out	Surface drainage, earthing and fertilizer application after water drain out	Surface drainage, picking up matured fruits	
Coriander	Surface drainage	Surface drainage	Surface drainage	To cover produce with plastic sheet or shift produces to farm shed To supply tarpaulin to farmers through RKVY/NFSM
Garlic/ Onion	Surface drainage	Surface drainage	Surface drainage	To cover produce with plastic sheet or shift produces to farm shed To supply tarpaulin to farmers through RKVY/NFSM
Outbreak of pests and diseases due to unseasonal rains				
Urid/ mung/ maize	Spraying of contact insecticide for control of caterpillar/ color rot	Spraying of contact insecticide for control of pest		
Groundnut/ sesamum/pigeon pea	Spraying of contact insecticide for control of caterpillar/ color rot	Spraying of contact insecticide for control of pest		

Rice	Spraying of insecticide for control of stem borer	Spraying of insecticide for control of pest like gundhibug		
Rabi oilseed and pulses	Spraying of insecticide for control of aphid	Spraying of insecticide for control of insect		
Wheat	Spraying of insecticide for control of stem borer			
Horticulture				
Tomato/ brinjal	Spraying of contact insecticide for control of caterpillar Stacking for protecting fungal diseases	Spraying of contact insecticide for control of caterpillar/ fruit borer Stacking for protecting fungal diseases	Harvest the fruit	
Coriander	Harvest the leaves	Harvest the leaves		
Garlic/ Onion				
Mango	-	Spray 0.2% wettable sulphur for protection against PM	Harvest at pre maturity stage	Unripe fruit may be used for pickles.
Citrus	Control citrus canker by Copper Oxy chloride 0.5 % & streptocycline 100 ppm	Control citrus canker by Copper Oxy chloride 0.5 % & streptocycline 100 ppm	Control citrus canker by Copper Oxy chloride 0.5 % & streptocycline 100 ppm, collect mature fruits	

2.3 Floods

Condition	Suggested contingency measure ^o			
	Seedling / nursery stage	Vegetative stage	Reproductive stage	At harvest
Transient water logging/ partial inundation¹				
Urid/ mung/ maize	Surface drainage	Surface drainage	Surface drainage	
Groundnut/ sesamum/pigeon pea	Surface drainage	Surface drainage	Surface drainage	
Rice	Surface drainage	After draining apply urea	Drain excess water	
Rabi oilseed and pulses	Surface drainage	Surface drainage	Surface drainage	
Wheat	Surface drainage	Surface drainage	Surface drainage	
Horticulture				
Tomato/ brinjal	Surface drainage	Surface drainage	Surface drainage	
Coriander	Surface drainage	Surface drainage	Surface drainage	
Garlic/ Onion	Surface drainage	Surface drainage	Surface drainage	
Mango	Surface drainage	Surface drainage	Surface drainage	
Citrus	Surface drainage	Surface drainage	Surface drainage	
Continuous submergence for more than 2 days²				
Urid/ mung/ maize	Surface drainage	Surface drainage	Surface drainage	
Groundnut/ sesamum/pigeon pea	Surface drainage	Surface drainage	Surface drainage	
Rice	Surface drainage	After draining apply urea	Drain excess water	
Rabi oilseed and pulses	Surface drainage	Surface drainage	Surface drainage	
Wheat	Surface drainage	Surface drainage	Surface drainage	
Horticulture				
Tomato/ brinjal	Surface drainage	Surface drainage	Surface drainage	
Coriander	Surface drainage	Surface drainage	Surface drainage	
Garlic/ Onion	Surface drainage	Surface drainage	Surface drainage	
Mango	Surface drainage	Surface drainage	Surface drainage	
Citrus	Surface drainage	Surface drainage	Surface drainage	

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