

State: Rajasthan

Agriculture Contingency Plan for District: BHARATPUR

1.0 District Agriculture profile					
1.1	Agro-Climatic/Ecological Zone				
	Agro Ecological Sub Region (ICAR)	Northern Plain (And Central Highlands) Including Aravallis, Hot Semi-Arid Eco-Region (4.1)			
	Agro-Climatic Zone (Planning Commission)	CENTRAL PLATEAU AND HILLS REGION (VIII)			
	Agro Climatic Zone (NARP)	FLOOD PRONE EASTERN PLAIN ZONE (RJ-6)			
	List all the districts or part thereof falling under the NARP Zone	Bharatpur (Bayana, Roopwas, Weir, Kumher, Nadbai, Deeg, Nagar, Kaman, Pahari, Bharatpur)			
	Geographic coordinates of district headquarters	Latitude	Longitude	Altitude	
		26 ⁰ 22' & 27 ⁰ 83' N	76 ⁰ 53' & 78 ⁰ 17' E	250 msl	
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS	Zonal Director Research, A.R.S., Navgaon (S.K.R.A.U., Bikaner), Distt.: Alwar.			
	Mention the KVK located in the district	K.V.K., Kumher (Bharatpur)			
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):	454		III week of June	III week of September
	NE Monsoon(Oct-Dec):	1			
	Winter (Jan- March)	47		-	-
	Summer (Apr-May)	17		-	-
	Annual	519		-	-

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)	507073	393638	33645	29933	7737	2975	194	21505	8999	8447

1.4	Major Soils (common names like red sandy loam deep soils (etc.,))*	Area ('000 ha)	Percent (%) of total
	Medium Brown Loamy		44.38
	Deep Brown Loamy		39.70
	Deep Dark Brown Sandy		6.80
	Red gravelly loam hilly soils		5.77
	5. Deep Black Clayey, Deep Brown Clayey, Shallow Yellowish brown Gravelly loam		
	Others (specify):		

* mention colour, depth and texture (heavy, light, sandy, loamy, clayey etc) and give vernacular name, if any, in brackets

1.5	Agricultural land use	Area ('000 ha)	Cropping intensity %
	Net sown area	393.638	146
	Area sown more than once	180.741	
	Gross cropped area	574.379	

1.6	Irrigation	Area ('000 ha)
	Net irrigated area	327.563

	Gross irrigated area	330.995		
	Rainfed area	243.384		
	Sources of Irrigation	Number	Area ('000 ha)	Percentage of total irrigated area
	Canals	0	0	
	Tanks	0	0	
	Open wells	9246	6.546	
	Bore wells	35289	322.909	97.53
	Lift irrigation schemes	-	-	2.0
	Micro-irrigation			
	Other sources (please specify)			
	Total Irrigated Area	330.995		
	Pump sets	42667		
	No. of Tractors			
	Groundwater availability and use* (Data source: State/Central Ground water Department /Board)	No. of blocks/ Tehsils (10)	(%) area	Quality of water (specify the problem such as high levels of arsenic, fluoride, saline etc)
	Over exploited	7	70	Sodic, fluoride
	Critical	3	30	
	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 - 2008-09) final estimates

1.7	Major field crops cultivated	Area ('000 ha)							
		Kharif			Rabi			Summer	Grand total
		Irrigated	Rainfed	Total	Crop	Irrigated	Rainfed		
Bajra	0	100.146		Wheat	133.758	-			
Guar	0	0.257		Barley	3.592				
Til	0	2.035		Gram	1.059	6.176			
Cotton	0.125	-		Mustard	189.708	223.223			
Arhar	0	0.257							
Groundnut	0.016	-							

	Horticulture crops - Fruits	Area ('000 ha)		
		Total	Irrigated	Rainfed
	Horticulture crops - Vegetables	Total	Irrigated	Rainfed
	Onion	0.127	0.127	-
	Potato	3.250	3.250	-
	Chilly	0.352	0.352	-

	Pea	0.089	0.089	-
	Coriander	0.012	0.012	-
	Medicinal and Aromatic crops	Total	Irrigated	Rainfed
	Methi	0.006	0.006	-
	Plantation crops	Total	Irrigated	Rainfed
	Eg., industrial pulpwood crops etc.			
	Fodder crops	Total	Irrigated	Rainfed
	Jowar		0	42.653
	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)			114635
	Crossbred cattle			11337
	Non descriptive Buffaloes (local low yielding)			474653
	Graded Buffaloes			NA
	Goat			219206

	Sheep				81527		
	Others (Camel, Pig, Yak etc.)				26758		
	Commercial dairy farms (Number)						
1.9	Poultry	No. of farms	Total No. of birds ('000)				
	Commercial		NA				
	Backyard						
1.10	Fisheries (Data source: Chief Planning Officer)						
	A. Capture-NA						
	i) Marine (Data Source: Fisheries Department)	No. of fishermen	Boats		Nets		Storage facilities (Ice plants etc.)
			Mechanized	Non-mechanized	Mechanized (Trawl nets, Gill nets)	Non-mechanized (Shore Seines, Stake & trap nets)	
	ii) Inland (Data Source: Fisheries Department)	No. Farmer owned ponds		No. of Reservoirs	No. of village tanks		
	B. Culture						
		Water Spread Area (ha)		Yield (t/ha)	Production ('000 tons)		
	i) Brackish water (Data Source: MPEDA/ Fisheries Department)						
	ii) Fresh water (Data Source: Fisheries Department)						
	Others						

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

1.11	Name of crop	Kharif		Rabi		Summer		Total		Crop residue as fodder ('000 tons)
		Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	Production ('000 t)	Productivity (kg/ha)	
Major Field crops (Crops to be identified based on total acreage)										
Crop 1	Bajra	152.034	1460	464.033 Wheat	3422					

Crop 2	Guar	4.250	919	10.147 Barley	2838					
Crop 3	Til	0.715	434	7.873 Gram	1071					
Crop 4	Cotton	1698 Bales	308	282.687 Mustard	1317					
Crop 5	Arhar	0.105	0.795							
Others	Groundnut	0.035	1418							
Major Horticultural crops (Crops to be identified based on total acreage)										
Crop 1	Methi	-	-	0.006	1200					

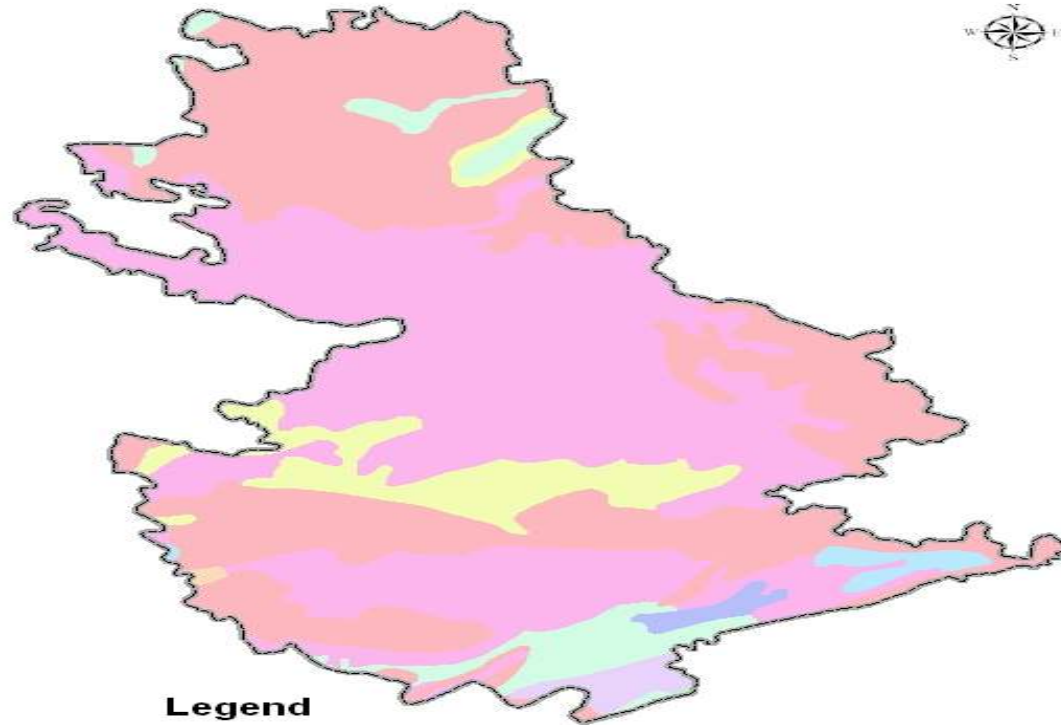
1.12	Sowing window for 5 major field crops (start and end of normal sowing period)	Crop 1: Bajra	2: Guar	3: Wheat	4: Barley	5: Mustard
	Kharif- Rainfed	15 th June – 15 th July	15 th June – 15 th July	-	-	-
	Kharif-Irrigated	15 th June – 15 th July	15 th June – 15 th July	-	-	-
	Rabi- Rainfed	-	-	-	1 st Nov.–30 th Nov	15 th Sep.-15 th Oct.
	Rabi-Irrigated	-	-	15 th Nov.–25 th Dec.	1 st Nov.–30 th Nov	15 th Oct.-15 th Nov.

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)			
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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

Soils of Bharatpur district, Rajasthan



Legend

-  Deep, black clayey soils
-  Deep, brown clayey soils
-  Deep, brown loamy soils
-  Deep, dark brown sandy soils
-  Medium, black clayey soils
-  Medium, brown loamy soils
-  Red gravelly loam hilly soils
-  Shallow, red gravelly loam soils
-  Shallow, yellowish brown gravelly loam soils
-  District boundary

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)* July 1 st week	1.Rainfed Medium brown loamy soil (high rain)	Bajra, Guar, Ti1	Bajra, Guar, Ti1	Wider spacing in Bajra 45x45/30 cm, thinning, inter culture operation, weed control at 25 DAS. Inter cropping of Bajra: Paired 2 rows of Bajra at 30 cm & only row of moong / guar.	Seed drill under RKVY, supply of seed through RSSC, NSC, Bio-fertilizers, plain water harvesting structures, for regular fodder supply planting of Ardu, subabul, etc. at farmer & village level. Desilting of
		-mustard, wheat, barley, gram, Bajra-HHB-67, HHB-	-mustard, wheat, barley, gram, Bajra-HHB-67, HHB-		
		94, ICMH-356, MH-169.	94, ICMH-356, MH-169 , HHB 60 , RHB 30 , ICTP 8203		
		Guar-RGC—486, 1003, 1017, 1002, 1091, 936. Til-RT-46, RT-125, RT-127.	Guar-RGC—486, 1003, 1017, 1002, 1091, 936, RGM 112 , Til- RT-46, RT-125, RT-127, GT-1 .		

Condition			Suggested Contingency measures		
Early season drought (delayed onset)	Major Farming situation ^a	Normal Crop/cropping system ^b	Change in crop/cropping system ^c (short duration)	Agronomic measures ^d	Remarks on Implementation ^e

Delay by 4 weeks (Specify month) July III week	1.Rainfed Medium brown loamy soil (high rain)	As above	Guar-RGC-936, 1003, 1002, 1017. Bajra-HHB-67, ICMH-356, HHB- 60, RHB- 30, ICTP- 8203	Prepare seed nursery of bajra & transplant in July end. Inter cropping of Bajra: Paired 2 rows of Bajra at 30 cm & only row of moong / guar.	Seed drill under RKVY, supply of seed through RSSC, NSC, Bio-fertilizers, plain water harvesting structures, for regular fodder supply planting of Ardu, subabul, etc. at farmer & village level. Desilting of ponds to increase their capacity.
	2.Rainfed Deep brown loamy soil (medium rain)				

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) August I week	1.Rainfed Medium brown loamy soil (high rain)	As above	Bajra, Jowar for fodder Purpose. Use short duration varieties Guar-green manuring	Increase seed rate, Adequate nutrient management	Supply of seed / through RSSC, NSC.
	2.Rainfed Deep brown loamy soil (medium rain)				

Condition			Suggested Contingency measures		
Early season drought	Major Farming situation ^a	Normal Crop/cropping system ^b	Change in crop/cropping system ^c	Agronomic measures ^d	Remarks on Implementation ^e

(delayed onset)					
Delay by 8 weeks (Specify month) N.A. Situation did not arise in last 20 years	1.Rainfed Medium brown loamy soil (high rain)	As above	Prepare land for rainfed rabi crops		

***Matrix for specifying condition of early season drought due to delayed onset of monsoon (2, 4, 6 & 8 weeks) compared to normal onset (2.1.1)**

Normal onset (Month and week)	Month and week for specifying condition of early season drought due to delayed onset of monsoon			
	Delay in onset of monsoon by			
	2 wks	4 wks	6 wks	8 wks
June 1 st wk	June 3 rd wk	July 1 st wk	July 3 rd wk	Aug 1 st wk
June 2 nd wk	June 4 th wk	July 2 nd wk	July 4 th wk	Aug 2 nd wk
June 3 rd wk	July 1 st wk	July 3 rd wk	Aug 1 st wk	Aug 3 rd wk
June 4 th wk	July 2 nd wk	July 4 th wk	Aug 2 nd wk	Aug 4 th wk
July 1 st wk	July 3 rd wk	Aug 1 st wk	Aug 3 rd wk	Sep 1 st wk
July 2 nd wk	July 4 th wk	Aug 2 nd wk	Aug 4 th wk	Sep 2 nd wk

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 measures^d	Remarks on Implementation^e
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc.	1.Rainfed Medium brown loamy soil (high rain)	As above	Thinning, weeding, gap filling of thinned plants. Resowing, if necessary. Only short duration Varieties.	Mulching.	Supply of Weedicides under RKVY. Supply of intercultural Implements.

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 measures^d	Remarks on Implementation^e
At vegetative stage	1.Rainfed Medium brown loamy soil (high rain) 2.Rainfed Deep brown loamy soil (medium rain)	As above	Life saving irrigation , Thinning, weeding. Spraying of thiourea in bajra, guar, etc.		Supply of interculture implements through RKVY.

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 measures^d	Remarks on Implementation^e

At flowering/ fruiting stage	1.Rainfed Medium brown loamy soil (high rain)	As above	Life sowing irrigation, spray of 0.1% thiourea + 0.2%, FeSO ₄ 0.5%, K ₂ SO ₄ / KCl + 1% urea.	Mulching.	Supply of interculture implements through RKVY.
	2.Rainfed Deep brown loamy soil (medium rain)				

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.Rainfed Medium brown loamy soil (high rain)	As above	Life saving irrigation, harvest the crop for fodder purpose. Weed free field.	prepare the field followed by soil planking to conserve moisture for rabi rainfed crops.	Supply of interculture implements through RKVY.
	2.Rainfed Deep brown loamy soil (medium rain)				

2.1.2 Drought - Irrigated situation : N.A.

Condition			Suggested Contingency measures		
	Major Farming situation^f	Normal Crop/cropping system^g	Change in crop/cropping system^h	Agronomic measuresⁱ	Remarks on Implementation^j
Delayed release of water in canals due to					

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
low rainfall					
Limited release of water in canals due to low rainfall					
Non release of water in canals under delayed onset of monsoon in catchment					
Lack of inflows into tanks due to insufficient /delayed onset of monsoon					
Insufficient groundwater recharge due to low rainfall	Tube well sandy loam	Cotton	Vegetables tomato, chilly, brinjal, cucurbits.	Limited irrigation, irrigation drip / sprinkler.	Supply of interculture implements

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	Provide drainage.		Provide drainage, harvesting at Physiological maturity stage.	Shift safer Places the harvested crop plants heaped upright, threshed produced
Crop1 (specify) - Bajra, guar, til.				
Crop2				

				turned frequently, safe storage
Heavy rainfall with high speed winds in a short span² – N.A.				
Crop1				
Outbreak of pests and diseases due to unseasonal rains	Need based plant protection	-do-	-do-	-do-
Crop1				

2.3 Floods

Condition	Suggested contingency measure ^o			
	Seedling / nursery stage	Vegetative stage	Reproductive stage	At harvest
Transient water logging/ partial inundation¹				
Crop1 (specify)				
Crop2				
Continuous submergence for more than 2 days²				
Crop1				
Crop2				
Sea water intrusion³				
Crop1				

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	Life saving irrigation	Spraying of thiourea	Spraying of thiourea + FeSO ₄	
Crop1 – Bajra			or KCl / K ₂ SO ₄ + urea spray.	
Crop2 – Guar				
Crop3 – Til				

Cold wave^q	N.A.			
Crop1				
Frost	N.A.			
Crop1				
Hailstorm	N.A.			
Crop1				
Cyclone	N.A.			
Crop1				

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	Provide Enough feed & fodder	Provide sufficient feed & fodder along with mineral mixture. Harvest and use all failed crop material as fodder. Use MNB, urea treatment of poor fodder	Provide sufficient feed & fodder along with mineral mixture
Drinking water	Enough water for drinking	Provide sufficient water along with mineral mixture. Hygiene and sanitation, avoid wallowing of animals in water bodies	Provide sufficient water along with mineral mixture Specify option for drinking water reserves
Health and disease management		Vaccinate against contagious diseases, organization of mass animal health camps	Vaccinate against contagious diseases
Floods			
Feed and fodder availability	Provide Enough feed & fodder.	Provide dry fodder and feed in sufficient	Provide dry fodder and feed in

	Don't allow animals for grazing	amount	sufficient amount
Drinking water		Provide safe drinking water, maintain sanitation	Provide safe drinking water
Health and disease management	Vaccination against endemic diseases	Organization of mass animal health camp, Spraying of fly repellents	Deworming, proper disposal of dead animals
Cyclone			
Heat wave and cold wave			
Shelter/environment management	Normal condition	Cover the shelter from north side/west side and use heaters/coolers, Grazing during morning and evening time	Normal condition
Health and disease management	Normal condition	Vaccinate against diseases	Normal condition

^s based on forewarning wherever available

2.5.2 Poultry

	Suggested contingency measures			Convergence/linkages with ongoing programs, if any
	Before the event ^a	During the event	After the event	
Drought				
Shortage of feed ingredients	Provide Enough feed , store house hold grains	Provide sufficient feed along with mineral mixture	Provide sufficient feed along with mineral mixture	Provide Enough feed
Drinking water	Enough water for drinking	Provide sufficient water along with	Provide sufficient water along with mineral	Enough water for drinking

		mineral mixture	mixture	
Health and disease management		Vaccinate against contagious diseases	Vaccinate against contagious diseases	
Floods				
Shortage of feed ingredients	Provide Enough feed & fodder	Provide dry fodder and feed in sufficient amount	Provide dry fodder and feed in sufficient amount	Provide Enough feed & fodder
Drinking water		Provide safe drinking water	Provide safe drinking water	
Health and disease management				
Cyclone				
Shortage of feed ingredients				
Drinking water				
Health and disease management				
Heat wave and cold wave				
Shelter/environment management	Normal condition	Cover the shelter from north side/west side and use heaters/coolers	Normal condition	Normal condition
Health and disease management	Normal condition	Vaccinate against diseases	Normal condition	Normal condition

^a based on forewarning wherever available

2.5.3 Fisheries/ Aquaculture: NA