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	-	3rd week of June	3rd 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)	507.073	393.638	33.645	29.933	7.737	2975	.194	21.505	8.999	8.447

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*				
		Irrigated	**Rainfed**	**Total**	**Crop**	**Irrigated**	**Rainfed**	**Summer**	**Grand total**
	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	-	-	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)										
	Bajra	152.034	1460	464.033 Wheat	3422					
	Guar	4.250	919	10.147 Barley	2838					

	Til	0.715	434	7.873 Gram	1071					
	Cotton	1698 Bales	308	282.687 Mustard	1317					
	Arhar	0.105	0.795							
Others	Groundnut	0.035	1418							
Major Horticultural crops (Crops to be identified based on total acreage)										
	Methi	-	-	0.006	1200					

1.12	**Sowing window for 5 major field crops** (start and end of normal sowing period)	**Bajra**	**Guar**	**Wheat**	**Barley**	**Mustard**
	Kharif- Rainfed	2nd week of June – 2nd week of July	2nd week of June – 2nd week of July	-	-	-
	Kharif-Irrigated	2nd week of June – 2nd week of July	2nd week of June – 2nd week of July	-	-	-
	Rabi- Rainfed	-	-	-	1st week of November–30th November	2nd week of September- 2nd week of October
	Rabi-Irrigated	-	-	2nd week of November –3rd week of December.	1st week of November–4th week of November	2nd week of Oct.- 2nd week of November

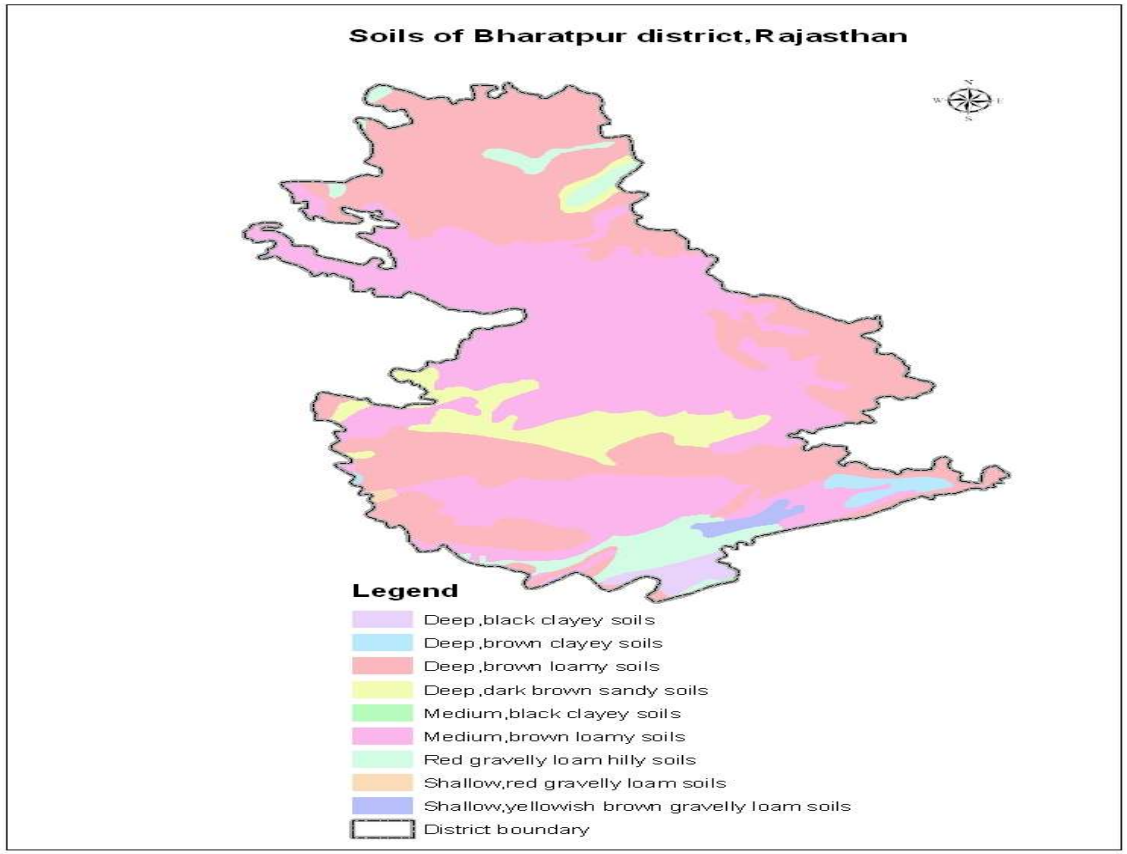
1.13	**What is the major contingency the district is prone to?** (Tick mark)	**Regular**	**Occasional**	**None**
	Drought	-	√	
	Flood	-	-	√
	Cyclone	-	-	√
	Hail storm	-	-	√
	Heat wave	-	√	-
	Cold wave	√	-	-
	Frost	-	√	-
	Sea water intrusion	-	-	√
	Pests and disease outbreak (specify)	-	-	-

	Others (specify)	-		

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

Location map

Soil map **Annexure-III**



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 1st week**	1.Rainfed Medium brown loamy soil (high rain)	Bajra,/ Guar/ Til/Mustard, /Wheat/Barley/ Gram,	Bajra,/ Guar/ Til/Mustard, /Wheat/Barley/ Gram, **Bajra**-HHB-67, HHB-94, ICMH-356, MH-169, HHB 60, RHB 30, ICTP 8203 **Guar-**RGC—486, 1003, 1017, 1002, 1091, 936, RGM 112 **Til-** RT-46, RT-125, RT-127, GT-1.	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

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 3rd week	Rainfed Medium brown loamy soil (high rain)	Bajra,/ Guar/ Til/Mustard, /Wheat/Barley/ Gram	**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

	Rainfed Deep brown loamy soil (medium rain)				regular fodder supply planting of Ardu, subabul, etc. at farmer & village level. Desilting of ponds to increase their capacity.

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 1st week	Rainfed Medium brown loamy soil (high rain)	Bajra,/ Guar/ Til/Mustard, /Wheat/Barley/ Gram	Bajra, Jowar for fodder Purpose. Use short duration varieties Guar-green manuring	Increase seed rate, Adequate nutrient management	Supply of seed / through RSSC, NSC.
	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 8 weeks (Specify month) N.A. **August 4th t week** **Situation did not**	Rainfed Medium brown loamy soil (high rain)	Bajra,/ Guar/ Til/Mustard, /Wheat/Barley/ Gram	Prepare land for rainfed rabi crops	-	

arise in last 20 years					

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.	Rainfed Medium brown loamy soil (high rain)	Bajra,/ Guar/ Til/Mustard, /Wheat/Barley/ Gram	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	Rainfed Medium brown loamy soil (high rain)	Bajra,/ Guar/ Til/Mustard, /Wheat/Barley/ Gram	Life saving irrigation , Thinning, weeding. Spraying of thiourea in bajra, guar, etc.		Supply of interculture implements through RKVY.
	Rainfed Deep brown loamy soil (medium rain)				

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	Rainfed Medium brown loamy soil (high rain)	Bajra,/ Guar/ Til/Mustard, /Wheat/Barley/ Gram	Life sowing irrigation, spray of 0.1% thiourea + 0.2%, $FeSO_4$ 0.5%, K_2SO_4 / KCI + 1% urea.	Mulching.	Supply of interculture implements through RKVY.
	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]**
	Rainfed Medium brown loamy soil (high rain)	Bajra,/ Guar/ Til/Mustard, /Wheat/Barley/ Gram	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.
	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 measures[i]**	**Remarks on Implementation[j]**
Delayed release of water in canals due to 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					

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					
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			
Continuous high rainfall in a short span leading to water logging	**Vegetative stage[k]**	**Flowering stage[l]**	**Crop maturity stage[m]**	**Post harvest[n]**
Bajra, guar, til.	Provide drainage.		Provide drainage, harvesting at Physiological maturity stage.	Shift safer Places the harvested crop plants heaped upright, threshed produced turned frequently, safe storage
Heavy rainfall with high speed winds in a short span[2] – N.A.				
Outbreak of pests and diseases due to unseasonal rains	Need based plant protection	-do-	-do-	-do-

2.3 Floods-- N.A.

Condition	Suggested contingency measure[o]			
Transient water logging/ partial inundation[1]	**Seedling / nursery stage**	**Vegetative stage**	**Reproductive stage**	**At harvest**
Continuous submergence for more than 2 days[2]				
Sea water intrusion[3]				

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 KCI / K_2SO_4 + urea spray.	
Crop2 – Guar				
Crop3 – Til				
Cold wave[q]	N.A.			
Frost	N.A.			
Hailstorm	N.A.			
Cyclone	N.A.			

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	Provide sufficient feed & fodder along with mineral mixture

		poor fodder	
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
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. Don't allow animals for grazing	Provide dry fodder and feed in sufficient amount	Provide dry fodder and feed in sufficient amount
Drinking water		Provide safe drinking water, maintain sanition	Provide safe drinking water
Health and disease management	Vaccination against endemic diseases	Organization of mass animal health camp, Spraing 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

[$] 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 mineral mixture	Provide sufficient water along with mineral mixture	Enough water for drinking
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	Normal condition	Normal condition

		heaters/coolers		
Health and disease management	Normal condition	Vaccinate against diseases	Normal condition	Normal condition

[a] based on forewarning wherever available

2.5.3 Fisheries/ Aquaculture: Not applicable