State: Rajasthan

Agriculture Contingency Plan for District: Alwar

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	Alwar (Thanagaji, Ramgarh, Bansur, Rajgarh, Kishangarh Bas, Tijara, Beharor, Kathumar, Kotkasim).			
	Geographic coordinates of district headquarters	Latitude	Longitude	Altitude	
		27^0 40' & 28^0 34''' N	76^0 07' & 77^0 13' 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., Navgaon (Alwar).			
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):	527		3rd week of June	3rd week of September
	NE Monsoon(Oct-Dec):	16	-	-	-
	Winter (Jan- March)	31	-	-	-
	Summer (Apr-May)	27		-	-
	Annual	601		-	-

1.3	**Land use pattern of the district (latest**	Geographical Area	Cultivable area	Forest area	Land under non-agricultural	Permanent Pastures	Cultivable wasteland	Land under Misc.	Barren and uncultivable land	Current fallows	Other fallows

	statistics)				use			tree crops and groves			
	Area (‘000 ha)	**782.984**		79.590	48.088	24.221	7.802	0.188	80.486	19.051	22.277

1. 4	**Major Soils (common names like red sandy loam deep soils (etc.,)***	**Area (‘000 ha)**	**Percent (%) of total**
	1. Medium brown loamy	-	29.61
	2. Deep brown loamy	-	36.1
	3. Deep dark brown sandy	-	11.68
	4. medium red loamy	-	1.26
	5. Red gravelly loam hilly	-	21.35
	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	501.281	162
	Area sown more than once	311.592	
	Gross cropped area	812.873	

1.6	**Irrigation**	Area (‘000 ha)		
	Net irrigated area	445.339		
	Gross irrigated area	481.307		
	Rainfed area	331.566		
	Sources of Irrigation	Number	Area (‘000 ha)	Percentage of total irrigated area
	Canals	1	1.073	0.6
	Tanks	1	1.000	0.6
	Open wells	62438	207.020	43.01
	Bore wells	38844	273.548	56.83
	Lift irrigation schemes	-	-	
	Micro-irrigation			
	Other sources (please specify)			
	Total Irrigated Area			
	Pump sets	70534		
	No. of Tractors			
	Groundwater availability and use* (Data source: State/Central Ground water Department /Board)	No. of blocks/ Tehsils (14)	(%) area	Quality of water (specify the problem such as high levels of arsenic, fluoride, saline etc)
	Over exploited	13	92.85	Sodic, fluoride
	Critical	1	7.15	
	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 (2008-09)

1.7	Major field crops cultivated	Area ('000 ha)							
		Kharif			*Rabi*				
		Irrigated	**Rainfed**	**Total**	**Crop**	**Irrigated**	**Rainfed**	**Summer**	**Grand total**
	Bajra	5.701	226.340		Wheat	170.143	-		
	Guar	0.887	24.414		Barley	15.700	-		
	Til	0.016	3.453		Gram	6.335	14.301		
	Cotton	2.372	-		Mustard	257.196	269.865		
	Arhar	0.638	2.203						
	Groundnut	1.632	-						

	Horticulture crops - Fruits	**Area ('000 ha)**		
		Total	**Irrigated**	**Rainfed**
		-	-	-

	Horticulture crops - Vegetables	**Total**	**Irrigated**	**Rainfed**
	Onion	8.481	8.481	-
	Potato	0.091	0.91	-
	Chilly	0.269	0.269	-
	Pea	0.139	0.139	-

	Coriander	0.027	0.027	-
	Medicinal and Aromatic crops	**Total**	**Irrigated**	**Rainfed**
	Methi	0.773	0.773	-
	All	0.019	0.019	-
	Plantation crops	**Total**	**Irrigated**	**Rainfed**
	Eg., industrial pulpwood crops etc.			
	Fodder crops	**Total**	**Irrigated**	**Rainfed**
	Jowar		0.076	24.459
	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)			184519
	Crossbred cattle			11949
	Non descriptive Buffaloes (local low yielding)			NA
	Graded Buffaloes			974731
	Goat			709733
	Sheep			99945
	Others (Camel, Pig, Yak etc.)			29331
	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						
	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;)

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	365.154	1626	592.845 Wheat	3380					
	Guar	31.194	1278	38.623 Barley	2835					
	Til	0.841	366	19.444 Gram	965					
	Cotton	29821 Bales	324	329.939 Mustard	1276					
	Arhar	1.889	1429							
	Groundnut	2.046	1511							
Major Horticultural crops (Crops to be identified based on total acreage)										
	Methi	-	-	0.612	1107					

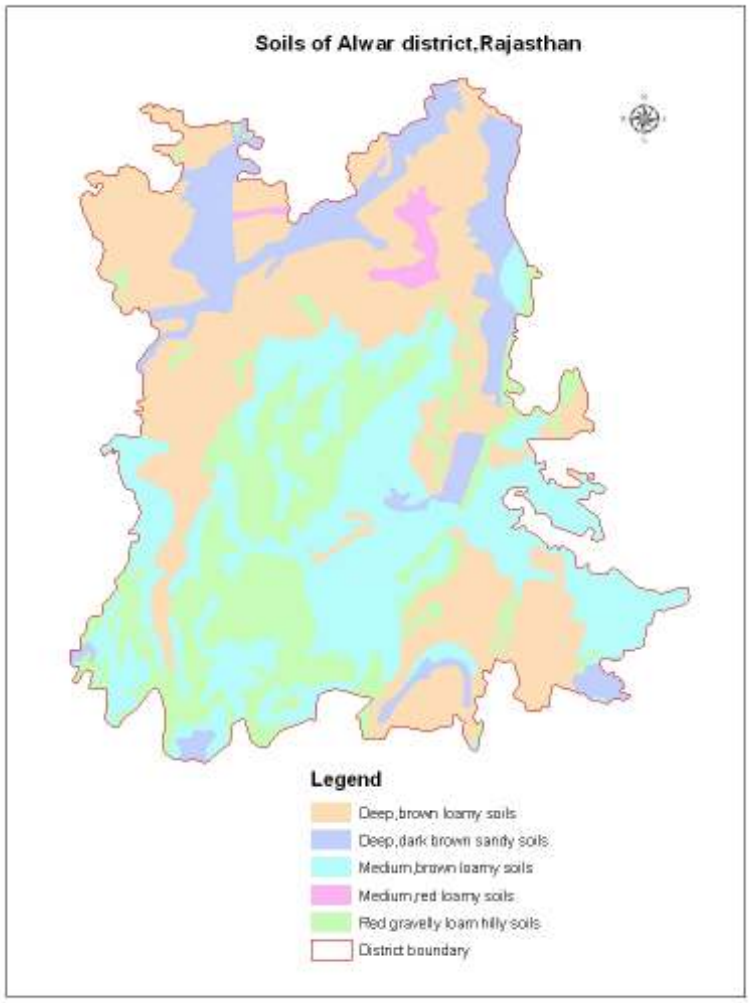
1.12	**Sowing window for 5 major field crops** (start and end of normal sowing period)	**Bajra**	**Cluster bean**	**Wheat**	**Barley**	**Mustard**
	Kharif- Rainfed	2nd week of June to 2nd week of July	2nd week of June – 2nd week of July	-	-	-
	Kharif-Irrigated	2nd week of June – 2nd week of July	2nd week of June – 2nd week of July	-	-	-
	Rabi- Rainfed	-	-	-	1st week of Nov.– 4th week of Nov	15th week of Sep.- 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 October.-15th 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: Yes
		Mean annual rainfall as Annexure 2	Enclosed: No
		Soil map as Annexure 3	Enclosed: Yes / No

Annexure-I **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 **July 1st week**	Sandy to sandy loam	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 one 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.

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

Delay by 4 weeks **July 3rd week**	Sandy to sandy loam	Bajra,/ Guar/ Til/Mustard, /Wheat/Barley/ Gram,	Guar-RGC-936, 1003, 1002, 1017. Bajra-HHB-67, ICMH-356, RHB 30	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.

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 1st week**	Sandy to sandy loam	Bajra,/ Guar/ Til/Mustard, /Wheat/Barley/ Gram,	Bajra, Jowar for fodder purpose. Guar-green manuring	Increase seed rate, Adequate nutrient management	Supply of seed / through RSSC, NSC.

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 **N.A.** **Situation did not arise in last 20**	Sandy to sandy loam	Bajra,/ Guar/ Til/Mustard, /Wheat/Barley/ Gram,	Fodder crops	Prepare land for rainfed rabi crops	

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.	Sandy to sandy loam	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 measues[d]**	**Remarks on Implementation[e]**
At vegetative stage	Sandy to sandy loam	Bajra,/ Guar/ Til/Mustard, /Wheat/Barley/ Gram,	Life saving irrigation, thinning, weeding. Spraying of thiourea in bajra, guar, etc.		Supply of interculture implements

Condition			**Suggested Contingency measures**		
Mid season drought (long dry spell)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Soil nutrient & moisture conservation measues[d]**	**Remarks on Implementation[e]**
At flowering/ fruiting stage	Sandy to sandy loam	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.

Condition			Suggested Contingency measures		
Terminal drought (Early withdrawal of monsoon)	**Major Farming situation[a]**	**Normal Crop/cropping system[b]**	**Crop management[c]**	**Rabi Crop planning[d]**	**Remarks on Implementation[e]**
	Sandy to sandy loam	Bajra,/ Guar/ Til/Mustard, /Wheat/Barley/ Gram,	Life saving irrigation, harvest the crop for fodder purpose. Weed free field.	Harvested field: prepare the field followed by soil planking to conserve moisture for rabi rainfed crops.	Supply of interculture implements through RKVY.

2.1.2 Drought - Irrigated situation: Not applicable

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					
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 through RKVY.

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,	Provide drainage, harvesting at Physiological maturity stage.	Shift safer places harvested crop plants heeped upright, threshed produced turned frequently and 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 IPDTI for all crops	-do-	-do-	-do-

2.3 Floods: Not applicable

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 + $FeSO_4$	
Bajra			or KCI / K_2SO_4 + urea spray.	
Guar				
Til				
Cold wave[q]	N.A.			
Crop1				
Frost	N.A.			
Crop1				
Hailstorm	N.A.			
Crop1				
Cyclone	N.A.			

2.5 Contingent strategies for Livestock, Poultry & Fisheries

2.5.1 Livestock

	Suggested contingency measures		
	Before the event[s]	**During the event**	**After the event**
Drought			
Feed and fodder availability		Provide sufficient feed and 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		Provide sufficient water along with mineral mixture, Hygiene and sanitation, avoid wallowing of animals in water bodies	Specify option for drinking water reserves
Health and disease management		Vaccinate against contagious disease,	Vaccinate against contagious

		organization of mass animal health camps	diseases.
Floods	N.A.		
Feed and fodder availability			
Drinking water			
Health and disease management			
Cyclone	N.A.		
Feed and fodder availability			
Drinking water			
Health and disease management			
Heat wave and cold wave	N.A.		
Shelter/environment management			
Health and disease management			

[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	N.A.			
Shortage of feed ingredients				
Drinking water				
Health and disease management				
Floods	N.A.			

Shortage of feed ingredients				
Drinking water				
Health and disease management				
Cyclone	N.A.			
Shortage of feed ingredients				
Drinking water				
Health and disease management				
Heat wave and cold wave	N.A.			
Shelter/environment management				
Health and disease management				

[a] based on forewarning wherever available

2.5.3 Fisheries/ Aquaculture –Not applicable