

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 ^o 40' & 28 ^o 34' N	76 ^o 07' & 77 ^o 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		III week of June	III 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 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)	782.984	812.873	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 (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	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; 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	365.154	1626	592.845	3380					
Crop 2	Guar	31.194	1278	38.623	2835					
Crop 3	Til	0.841	366	19.444	965					
Crop 4	Cotton	29821	324	329.939	1276					
Crop 5	Arhar	1.889	1429							
Others	Groundnut	2.046	1511							
Major Horticultural crops (Crops to be identified based on total acreage)										
Crop 1	Methi	-	-	0.612	1107					
Crop 2										

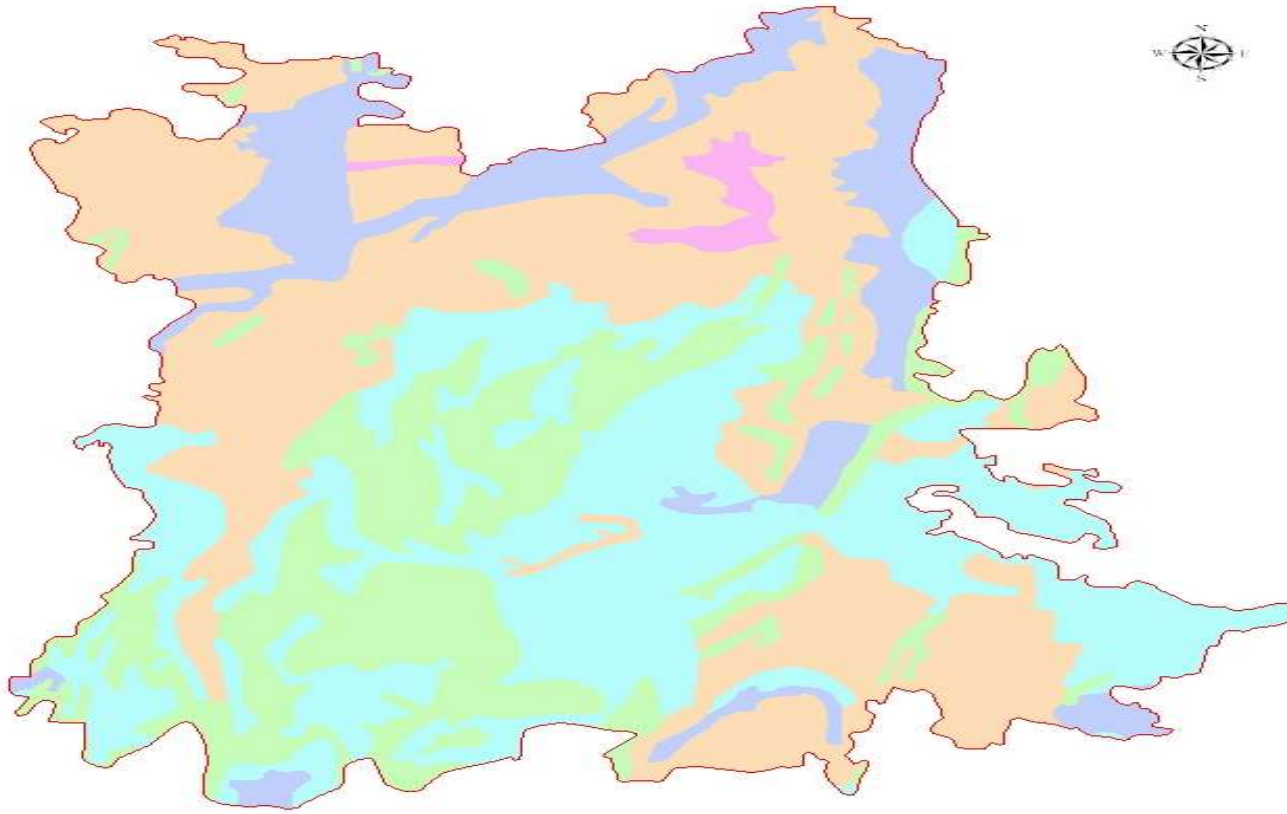
1.12	Sowing window for 5 major field crops (start and end of normal sowing period)	Bajra	2: Guar	3: Wheat	4: Barley	5: Mustard
	Kharif- Rainfed	15 th June – 15 th July	15 th June – 15 th July	-	-	-
	Kharif-Irrigated	15 th June – 15 th July	15 th June – 15 th July	-	-	-
	Rabi- Rainfed	-	-	-	1 st Nov.–30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

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 Alwar district, Rajasthan



Legend

-  Deep, brown loamy soils
-  Deep, dark brown sandy soils
-  Medium, brown loamy soils
-  Medium, red loamy soils
-  Red gravelly loam hilly 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 1st week (REFER TO THE MATRIX TABLE)	1 Sandy to sandy loam *Describe farming situation taking into account rainfall & soil information like colour and depth etc eg., scarce rainfall shallow red soils	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 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.
		-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	As above	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 (Specify month) August I week	1	As above	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 (Specify month)	1	As above		Prepare land for rainfed rabi crops	

N.A. Situation did not arise in last 20 years					
--	--	--	--	--	--

***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	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)	Major Farming situation ^a	Normal Crop/cropping system ^b	Crop management ^c	Soil nutrient & moisture	Remarks on Implementation ^e

dry spell, consecutive 2 weeks rainless (>2.5 mm) period)				conservation measues ^d	
At vegetative stage	1	As above	Life saving irrigation,		Supply of
			thinning, weeding. Spraying of		interculture
			thiourea in bajra, guar, etc.		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	1	As above	Life sowing irrigation, spray	Mulching.	Supply of
			of 0.1% thiourea + 0.2%,		interculture
			FeSO ₄ 0.5%, K ₂ SO ₄ / KCl +		implements
			1% urea.		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
	1	As above	Life saving irrigation,	Harvested field:	Supply of
			harvest the crop for fodder	prepare the field	interculture
			purpose.	followed by soil	implements
				planking to conserve	through RKVY.
		Weed free field.	moisture for rabi		
	2			rained crops.	

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			
	Vegetative stage ^k	Flowering stage ^l	Crop maturity stage ^m	Post harvest ⁿ
Continuous high rainfall in a short span leading to water logging				
Crop1 (specify) - Bajra, guar, til.	Provide drainage.	Provide drainage,	Provide drainage, harvesting at Physiological maturity	Shift safer places harvested
Crop2				

Crop3			stage.	crop plants heaped upright, threshed produced turned frequently and safe storage
Crop4				
Heavy rainfall with high speed winds in a short span² – N.A.				
Crop1				
Outbreak of pests and diseases due to unseasonal rains	Need based	-do-	-do-	-do-
Crop1	plant protection			
Crop2	IPDTI for all crops			

2.3 Floods: N.A.

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				
Crop3				
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, organization of mass animal health camps	Vaccinate against contagious 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

