



# DHULE DISTRICT

## CONTINGENT CROP PLANNING AND AGRO ADVISORY

### EDITORS

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2017

**STATE: MAHARASHTRA**

**Agriculture Contingency Plan for District: DHULE**

<b>1.0 District Agriculture profile</b>	
<b>1.1</b>	<b>Agro-Climatic/Ecological Zone</b>
	Deccan plateau, hot semi arid eco region (6.2)
	Western plateau and hills region (IX)
	Sub Mountain Zone (MH-6)
	Sub Mountain Zone - Nandurbar, Dhule, Nashik, Pune, Kolhapur
	List all the districts or part thereof falling under the NARP Zone
	Geographic coordinates of district headquarters
	Latitude
	20° 38' -21° 61' N
	Longitude
	73° 50' -75° 11' E
	Altitude
	185-215 m MSL
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTS
	Krishvi Vigyan Kendra, College of Agriculture, Parola Road, Dhule 424004 Phone & Fax (O):02562-230362, email:pcvkdhule@rediffmail.com
	ZARS, Kolhapur, PIN – 416012 (M.S.) - Sub Mountain Zone
	Mention the KVK located in the district
	Krishvi Vigyan Kendra, College of Agriculture, Dhule 424004
<b>1.2</b>	<b>Rainfall</b>
	Normal RF(mm)
	537.1
	Normal Rainy days (number)
	27
	SW monsoon (June-Sep):
	191.4
	NE Monsoon(Oct-Dec):
	09
	Winter (Jan- Feb)
	0.0
	Summer (March-May)
	0.0
	Annual
	728.5
	Normal Onset
	Normal Cessation
	1 <sup>st</sup> fortnight of June
	1 <sup>st</sup> fortnight of October
	-
	-
	-

<b>1.3</b>	<b>Land use pattern of the district</b>	<b>Geographical area</b>	<b>Cultivable area</b>	<b>Forest area</b>	<b>Land under non-agricultural use</b>	<b>Permanent pastures</b>	<b>Cultivable wasteland</b>	<b>Land under Misc. tree crops and groves</b>	<b>Barren and uncultivable land</b>	<b>Current fallows</b>	<b>Other fallows</b>
	<b>Area ('000 ha)</b>	824.63	464.83	208.80	59.00	29.00	16.00	4.00	14.00	20.00	9.00

(Source: Agricultural Statistical Information, Maharashtra State 2006 (Part II))

<b>1.4</b>	<b>Major Soils</b>	<b>Area ('000 ha)</b>
	Shallow black soils	278.00
	Medium deep black soils	111.00
	Deep black soils	75.83

(Source: NBSS & LUP, Nagpur)

<b>1.5</b>	<b>Agricultural land use</b>	<b>Area ('000 ha)</b>	<b>Cropping intensity %</b>	
	Net sown area	431.00	107.70	
	Area sown more than once	19.00		
	Gross cropped area	464.00		
<b>1.6</b>	<b>Irrigation</b>	<b>Area ('000 ha)</b>	<b>Area ('000 ha)</b>	
	Net irrigated area	87.16		
	Gross irrigated area	117.16		
	Rainfed area	377.67		
	<b>Sources of Irrigation</b>	<b>Number</b>	<b>Area ('000 ha)</b>	<b>Percentage of total irrigated area</b>
	Canals	--	5.2	13.7
	Tanks	--	0.03	0.07
	Open wells	22832	30.8	80.8
	Bore wells	145	2.0	5.3
	Lift irrigation schemes	08	--	--
Micro-irrigation	-	--	--	
Other sources (please specify)	-	--	--	
Total Irrigated Area	-	38.1	100	
Pump sets	21135	--	--	
No. of Tractors	1231	--	--	
Total irrigated area				

	<b>Groundwater availability and use* (Data source: State/Central Ground water Department /Board)</b>	<b>No. of blocks/ Tehsils</b>	<b>(%) area</b>	<b>Quality of water (specify the problem such as high levels of arsenic, fluoride, saline etc)</b>
	Over exploited	NA	--	--
	Critical	NA	--	--
	Semi-critical	NA	--	--
	Safe	4	100	Satisfactory
	Wastewater availability and use	NA	--	--
	Ground water quality		NA	

Source : Strategic Research & Extension Plan of Dhule District

1.7 Area under major field crops & horticulture (Year 2008-09)

1.7	Major field crops cultivated	Area ('000 ha)											
		Kharif					Rabi						
		Irrigated	Rainfed	Total	Irrigated	Rainfed	Total	Irrigated	Rainfed	Total	Summer	Grand total	
	Cotton	30.0	85.0	115.0	--	--	--	--	--	--	--	--	115.0
	Pearlmillet	--	104.5	104.5	--	--	--	--	--	--	0.2	0.2	104.7
	Groundnut	35.7	--	35.7	--	--	--	--	--	--	0.1	0.1	35.8
	Maize	--	34.7	34.7	--	--	--	--	--	--	--	--	34.7
	Paddy	-	21.5	21.5	-	-	-	-	-	-	-	-	21.5
	Wheat	--	--	--	36.0	--	36.0	--	--	36.0	--	--	36.0
	Bengal Gram	--	--	--	25.0	--	25.0	--	--	25.0	--	--	25.0

Horticulture crops	Area ('000 ha)		
	Total	Irrigated	Rainfed
Onion	9.9	9.9	--
Pomegranate	5.0	5.0	--
Chilli	3.1	3.1	--
Banana	0.6	0.6	--
Tomato	0.3	0.3	--
Aonla	0.4	0.4	--
Custard Apple	0.4	0.4	--
<b>Medicinal and Aromatic crops</b>	<b>--</b>	<b>--</b>	<b>--</b>
<b>Plantation crops</b>	<b>--</b>	<b>--</b>	<b>--</b>
<b>Fodder crops</b>	<b>--</b>	<b>--</b>	<b>--</b>
<b>Total fodder crop area</b>	<b>--</b>	<b>--</b>	<b>--</b>
<b>Grazing land</b>	<b>29</b>	<b>--</b>	<b>--</b>
<b>Sericulture etc</b>	<b>--</b>	<b>--</b>	<b>--</b>
<b>Others (specify)</b>	<b>--</b>	<b>--</b>	<b>--</b>

1.8	Livestock	Male ('000)	Female ('000)	Total ('000)
	Non descriptive Cattle (local low yielding)	173.0	140.9	313.9
	Crossbred cattle	23.6	23.3	46.9
	Non descriptive Buffaloes (local low yielding)	12.1	51.3	63.5
	Graded Buffaloes	5.0	35.0	40.0
	Goat	85.0	204.7	289.7
	Sheep	8.7	293.3	302.1
	Others (Camel, Pig, Yak etc.)			
	Commercial dairy farms (Number)			

1.9	Poultry	No. of farms	Total No. of birds
	Commercial	26	394.5
	Backyard	0	155.0

1.10	Fisheries (Data source: Chief Planning Officer)	A. Capture				
i) Marine (Data Source: Fisheries Department)		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. of farmer owned ponds		No. of Reservoirs		No. of village tanks
		0		39		995

B. Culture				
		Water Spread Area (ha)	Yield (t/ha)	Production (tons)
i) Brackish water (Data Source: MPEDA/ Fisheries Department)		NA	NA	NA
ii) Fresh water (Data Source: Fisheries Department)		9125	0.203	1855

Source: District information Office publication 2005 (Apala Dhule Gilha) & SAO, Dhule Govt. Of Maharashtra (Report 2008-09)

### 1.11 Production and Productivity of major crops (2004-08)

1.1.1	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)	
<b>Major Field crops (Crops to be identified based on total acreage)</b>										
	Cotton	42.8	373	--	--	--	--	42.8	373	--
	Pearl millet	119.1	1140	--	--	--	--	119.1	1140	--
	Groundnut	29.4	825	--	--	--	--	29.4	825	--
	Maize	86.4	2492	--	--	--	--	86.4	2492	--
	Paddy	17.2	823	-	-	-	-	17.2	823	-
	Wheat	--	--	86.1	2394	--	--	86.1	2394	--
	Bengal Gram	--	--	27.9	1116	--	--	27.9	1116	--
<b>Major Horticultural crops (Crops to be identified based on total acreage)</b>										
	Onion	188.7	18950	--	--	--	--	188.7	18950	--
	Pomegranate	--	--	--	--	280.00	5600	280.00	5600	--
	Chilli	12.7	4060	--	--	--	--	12.7	4060	--
	Banana	29.8	49900	--	--	--	--	29.8	49900	--
	Tomato	8.9	28000	--	--	--	--	8.9	28000	--
	Aonla	2.4	5660	--	--	--	--	2.4	5660	--
	Custard Apple	2.6	5500	--	--	--	--	2.6	5500	--

1.12	Sowing window for 5 major field crops	Cotton	Khariif Sorghum	Maize	Pearlmillet	Paddy	Rabi Sorghum	Chick pea
	Khariif Rainfed	3 <sup>rd</sup> week of June-2 <sup>nd</sup> week of July	3 <sup>rd</sup> week of June-2 <sup>nd</sup> week of July	3 <sup>rd</sup> week of June-2 <sup>nd</sup> week of July	3 <sup>rd</sup> week of June-2 <sup>nd</sup> week of July	3 <sup>rd</sup> week of June-2 <sup>nd</sup> week of July	--	--
	Khariif Irrigated	1 <sup>st</sup> week of May-1 <sup>st</sup> week of June	--	--	--	--	--	--
	Rabi Rainfed	--	--	--	--	--	3 <sup>rd</sup> week of September.-2 <sup>nd</sup> week of October.	2 <sup>nd</sup> week of October-2 <sup>nd</sup> week of November.
	Rabi Irrigated	--	--	--	--	--	--	--

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

## 2.0 Strategies for weather related contingencies

### 2.1 Drought

#### 2.1.1 Rainfed situation

Condition		Suggested Contingency measures			Remarks on Implementation
Early season drought (delayed onset)	Major farming situation	Normal Crop / cropping system	Change in crop / cropping system including variety	Agronomic measures	
Delay by 2 weeks June 4 <sup>th</sup> Week	Shallow black soils	Pearlmillet	Adishakti, Dhanshakti, Shradhdha, Saburi, Shanti	- Application of 25 kg K <sub>2</sub> O per ha as basal dose - One hoeing and weeding before 30 DAS	<b>Seed source :</b> <ul style="list-style-type: none"> <li>Central campus MPKV, Rahuri,</li> <li>College of Agril., Pune, Kolhapur and Dhule NSC, MSSC, Private co. Distributors</li> </ul>
		Greengram/Blackgram	Greengram – Phule Vaibhav, Blackgram – TPU-4	- One hoeing and weeding before 30 DAS	
		Sorghum	CSH-14,16,17	--	
	Medium deep black soils	Upland Paddy	Phule Radha, Indrayani, Bhogavati	- Direct seeding with seed drill - Weed free condition upto 40 days - N split application (50 kg N at sowing & 50 kg N at 25 DAS)	
		Pigeonpea	Pearl millet (Adishakti, Dhanshakti, Shradhdha, Saburi, Shanti) + Pigeonpea (Vipula/BSMR-736 ) (2:1), Soybean (Phule Agrani, JS-335) + Pigeonpea (Vipula/BSMR-736 ) (3:1)	- Preparation of conservation furrows after harvest of pearl millet / soybean for moisture conservation - Weed free condition upto 30 DAS	
		Soybean	Phule Agrani, JS-335	- Hoeing at 25 DAS - Weed free condition upto 30 DAS	
Deep black soils	Cotton	Bt cotton	- Hoeing at 20, 60 DAS - Weeding at 30 DAS		
	Maize	Karveer, Phule Rajarshree	- Sowing on ridges - Weeding at 25 DAS		



Condition	Major farming situation	Normal crop/cropping system	Change in crop/cropping system	Suggested Contingency measures		Remarks on Implementation
				Agromomic measures	Agromomic measures	
Early season drought (delayed onset)  Delay by 4 weeks July 2 <sup>nd</sup> week 28MW	Shallow black soils	Pearlmillet	Adishakti, Dhanshakti, Shraddha, Saburi, Shanti	- Application of 25 kg K <sub>2</sub> O per ha as basal dose - One hoeing and weeding before 30 DAS	Seed source : • Central campus MPKV, Rahuri, College of Agril., Pune, Kolhapur and Dhule NSC, MSSC, Private co. Distributors	
		Greengram/Blackgram	Pearlmillet (Adishakti, Dhanshakti, Shraddha, Saburi, Shanti)	As above		
		Sorghum	As above	As above		
	Medium deep black soils	Upland Paddy	Phule Radha, Pavana	- Direct seeding with seed drill - Weed free condition upto 40 days - N split application (50 kg N at sowing & 50 kg N at 25 DAS)		
		Pigeonpea	Pigeonpea (Vipula / BDN-708) + Clusterbean (Pusa Sadabahar, Pusa Navbahar) (1:2)	- Opening of one conservation furrow after harvest of clusterbean		
		Soybean	Sunflower (SS-56 / Bhanu / Phule Raviraj / Phule Bhaskar)	- Seed treatment with Imadachloprid 70 WS @ 5-7 g per kg of seed - Hoeing at 20 DAS - Weeding upto 30 DAS		
	Deep black soils	Cotton	Bt cotton	- Hoeing at 20, 60 DAS - Weeding at 30 DAS		
		Maize	Karveer, Phule Rajarshee	- Sowing on ridges - Weeding at 25 DAS		

Condition	Major farming situation	Normal crop/cropping system	Change in crop/cropping system	Suggested Contingency measures		Remarks on Implementation
				Agronomic measures	Seed source :	
Early season drought (delayed onset)  Delay by 6 weeks July 4 <sup>th</sup> week 30 MW	Shallow black soils	Pearlmillet	Adishakti, Dhanshakti, Shradhdha, Saburi, Shanti	<ul style="list-style-type: none"> <li>- Application of 25 kg K<sub>2</sub>O per ha as basal dose</li> <li>- One hoeing and weeding before 30 DAS</li> <li>- As above</li> </ul>	<ul style="list-style-type: none"> <li>• Central campus MPKV, Rahuri, College of Agril., Pune, Kolhapur and Dhule</li> <li>NSC, MSSC, Private co. Distributors</li> </ul>	
		Greengram/ Blackgram	Pearlmillet (Adishakti, Dhanshakti Shradhdha, Saburi, Shanti)	<ul style="list-style-type: none"> <li>- As above</li> </ul>		
		Sorghum	As above	<ul style="list-style-type: none"> <li>- As above</li> </ul>		
	Medium deep black soils	Upland Paddy	Sunflower (SS-56 / Bhanu / Phule Raviraj / Phule Bhaskar)	<ul style="list-style-type: none"> <li>- Seed treatment with Imadachloprid 70 WS @ 5-7 g per kg of seed</li> <li>- Hoeing at 20 DAS</li> <li>- Weeding upto 30 DAS</li> </ul>		
		Pigeonpea	Pigeonpea (Vipula / BDN-708) + Clusterbean (1:2)	<ul style="list-style-type: none"> <li>- Opening of one conservation furrow after harvest of clusterbean</li> </ul>		
		Soybean	Sunflower (SS-56 / Bhanu / Phule Raviraj)	<ul style="list-style-type: none"> <li>- Seed treatment with Imadachloprid 70 WS @ 5-7 g per kg of seed</li> <li>- Hoeing at 20 DAS</li> <li>- Weeding upto 30 DAS</li> </ul>		
	Deep black soils	Cotton	Bt cotton	<ul style="list-style-type: none"> <li>- Hoeing at 20, 60 DAS</li> <li>- Weeding at 30 DAS</li> </ul>		
		Maize	Karveer, Phule Rajarshee	<ul style="list-style-type: none"> <li>- Sowing on ridges</li> <li>- Weeding at 25 DAS</li> </ul>		

Condition	Major farming situation	Normal crop/cropping system	Suggested contingency measures		Remarks on Implementation
			Change in crop/cropping system	Agronomic measures	
Early season drought (delayed onset) Delay by 8 weeks August 2 <sup>nd</sup> week 33MW			Not Applicable		

Condition	Major Farming situation	Normal Crop/cropping system	Crop management	Suggested Contingency measures		Remarks on Implementation
				Soil nutrient & moisture conservation measures	Soil nutrient & moisture conservation measures	
Early season drought (Normal onset) Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc.	Shallow black soils	Pearl millet	Protective Irrigation or resowing in case of failure	Hoeing and Weeding		Use of farm pond for life saving irrigation
		Greengram/Blackgram	Resowing	As above		
	Sorghum	--	As above			
	Medium deep black soils	Upland Paddy	--	Weeding and interculturing		
Pigeonpea		- Gap Filling	<ul style="list-style-type: none"> <li>Spray 2% urea or DAP</li> <li>Hoeing/weeding</li> <li>Hoeing/weeding</li> </ul>			
Deep black soils	Soybean	In case of less than 30 % germination take up resowing with wider spacing of 45 cm with sufficient soil moisture.				
	Cotton	Gap filling	Weeding, Protective irrigation			
	Maize	As above	As above			

Condition	Major Farming situation	Normal Crop/cropping system	Crop management	Suggested Contingency measures		Remarks on Implementation
				Crop management	Soil nutrient & moisture conservation measures	
Early season drought (Normal onset)	Shallow black soils	Pearlmillet	Give protective Irrigation	<ul style="list-style-type: none"> <li>• Hoeing/Weeding</li> <li>• Use of 8 % kaolin spray</li> <li>• 2 % urea spray</li> </ul>	Use of farm pond for life saving irrigation	
		Greengram/Blackgram	--	<ul style="list-style-type: none"> <li>• --</li> </ul>		
At vegetative stage	Medium deep black soils	Sorghum	Give protective Irrigation	<ul style="list-style-type: none"> <li>• Hoeing/Weeding</li> <li>• Use of 8 % kaolin spray</li> <li>• 2 % urea spray</li> </ul>		
		Upland Paddy	Give protective Irrigation	<ul style="list-style-type: none"> <li>• Weeding and interculture</li> </ul>		
	Deep black soils	Pigeonpea	Protective irrigation and thinning	<ul style="list-style-type: none"> <li>• Hoeing/Weeding</li> <li>• Use of 8 % kaolin spray</li> <li>• 2 % urea spray,</li> <li>• Opening of conservation furrows in between two rows of pigeonpea</li> </ul>		
		Soybean	Protective irrigation	<ul style="list-style-type: none"> <li>• Use of 8 % kaolin spray</li> <li>• 2 % urea spray,</li> <li>• Hoeing and weeding</li> </ul>		
	Deep black soils	Cotton	As above	<ul style="list-style-type: none"> <li>• Use of 8 % kaolin spray</li> <li>• Hoeing and weeding,</li> <li>• 2 % urea and or 2 % DAP spray</li> </ul>		
		Maize	As above	<ul style="list-style-type: none"> <li>• 2 % urea spray,</li> <li>• Hoeing and weeding</li> </ul>		

Condition	Major Farming situation	Normal Crop/cropping system	Crop management	Suggested Contingency measures		Remarks on Implementation
				Crop management	Soil nutrient & moisture conservation measures	
Early season drought (Normal onset)	Shallow black soils	Pearlmillet	Give protective Irrigation	<ul style="list-style-type: none"> <li>• Hoeing/Weeding</li> <li>• Use of 8 % kaolin spray</li> <li>• 2 % urea spray,</li> </ul>	Use of farm pond for life saving irrigation	
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period)		Greengram/Blackgram	--	--		
At flowering/ fruiting stage	Medium deep black soils	Sorghum	Give protective Irrigation	<ul style="list-style-type: none"> <li>• Hoeing/Weeding</li> <li>• Use of 8 % kaolin spray</li> <li>• 2 % urea spray</li> </ul>		
		Upland Paddy	Give protective Irrigation	Weeding and interculture		
	Deep black soils	Pigeonpea	Protective irrigation and thinning	<ul style="list-style-type: none"> <li>• Hoeing/Weeding</li> <li>• Use of 8 % kaolin spray</li> <li>• 2 % urea spray,</li> <li>• Opening of conservation furrows in between two rows of pigeonpea</li> </ul>		
		Soybean	Protective irrigation	<ul style="list-style-type: none"> <li>• Hoeing and weeding</li> </ul>		
		Cotton	As above	<ul style="list-style-type: none"> <li>• Use of 8 % kaolin spray</li> <li>• Hoeing and weeding,</li> <li>• 2 % urea and or 2 % DAP spray</li> </ul>		
		Maize	As above	<ul style="list-style-type: none"> <li>• --</li> </ul>		

Condition	Major farming situation	Normal crop/cropping system	Crop management	Suggested Contingency measures	
				Rabi crop planning	Remarks on Implementation
Terminal drought (Early withdrawal of monsoon)	Shallow black soils	Pearlmillet	Protective irrigation, In case of poor grain filling harvest for fodder	No rabi crop	Use of farm pond for life saving irrigation
		Greengram/Blackgram	Harvest the crop at physiological maturity	Chickpea (Vijay /Digvijay) / Safflower (Bhima) / Sunflower (SS-56 / Bhanu / Phule Bhaskar)	
		Sorghum	Protective irrigation, In case of poor grain filling harvest for fodder	Chickpea (Vijay /Digvijay) / Safflower (Bhima) / Sunflower (SS-56 / Bhanu / Phule Bhaskar)	
	Medium deep black soils	Upland Paddy	Harvest the crop at physiological maturity	No rabi crop	
		Pigeonpea	Protective irrigation	No rabi crop	
		Soybean	Protective irrigation	Chickpea (Vijay /Digvijay) or Wheat (Trimbak, Panchavati, Godavari) under assured irrigation	
				No rabi crop	
	Deep black soils	Cotton	As above		
		Maize	As above	Chickpea (Vijay /Digvijay/ Virat)	

## 2.1.2 Irrigated situation

Condition	Suggested contingency measures			Remarks on Implementation
	Major farming situation	Normal crop/cropping system	Change in crop/cropping system	
Delayed release of water in canals due to low rainfall			Not applicable	

Condition	Suggested contingency measures			Remarks on Implementation
	Major farming situation	Normal crop/cropping system	Change in crop/cropping system	
Limited release of water in canals due to low rainfall			Not applicable	

Condition	Suggested contingency measures			Remarks on Implementation
	Major farming situation	Normal crop/cropping system	Change in crop/cropping system	
Non release of water in canals under delayed onset of monsoon in catchment			Not applicable	

Condition	Major farming situation	Normal crop/cropping system	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Lack of inflows into tanks due to insufficient /delayed onset of monsoon	Uplands, light/red soils- or Medium, medium or deep black soils - tank fed	Cotton	Bt cotton	Skip row irrigation / Drip irrigation	
		Onion	Late <i>khari</i> f onion (Phule Samarth / Baswant 780)	Sprinkler irrigation	
		Chilli	Phule Jyoti / Local	Broad Bed Furrows, Drip irrigation	
		Tomato	Phule Raja	Drip irrigation	

Condition	Major farming situation	Normal crop/cropping system	Suggested Contingency measures		
			Change in crop/cropping system	Agronomic measures	Remarks on Implementation
Insufficient groundwater recharge due to low rainfall	Uplands, light/red soils- or Medium, medium or deep black soils - Open well	Cotton	Bt cotton	Skip row irrigation / Drip irrigation	
		Wheat	Trimbak, Godavari, Tapovan	Irrigate at critical stages CRI and flowering stage	
		Chickpea	Vijay, Digvijay,	Sprinkler irrigation	
		Onion	Late <i>khari</i> f onion (Phule Samarth / Baswant 780)	Sprinkler irrigation	
		Chilli	Phule Jyoti / Local	Broad Bed Furrows, Drip irrigation	
		Tomato	Phule Raja	Drip irrigation	



## 2.2 Unusual rains (untimely, unseasonal etc)

Condition	Suggested contingency measure			
	Vegetative stage	Flowering stage	Crop maturity stage	Post harvest
Continuous high rainfall in a short span leading to water logging				
Cotton	Drain out excess water	Drain out excess water	Drain out excess water	Shifting of economic produce to safer place for drying
Pearl millet	<ul style="list-style-type: none"> <li>Drain out excess water,</li> <li>Give second dose of N at optimum soil moisture</li> </ul>	<ul style="list-style-type: none"> <li>Drain out excess water,</li> </ul>	<ul style="list-style-type: none"> <li>Harvest at physiological maturity stage</li> </ul>	<ul style="list-style-type: none"> <li>Harvest &amp; dry in shade</li> </ul>
Soybean	Drain out excess water,	As above	As above	As above
Maize	<ul style="list-style-type: none"> <li>Drain out excess water,</li> <li>Give second dose of N at optimum soil moisture</li> </ul>	As above	As above	As above
Sun flower	Drain out excess water	As above	As above	As above
Upland Paddy	--	--	Drain out excess water	As above
<b>Horticulture crops</b>	<b>Vegetative stage</b>	<b>Flowering stage</b>	<b>Crop maturity stage</b>	<b>Post harvest</b>
Mango	Micro site improvement	Provide drainage	Harvest and grade the fruits	--
Guava	As above	As above	As above	--
Custard apple	As above	As above	As above	--
Onion	Drain out excess water	Drain out excess water	Drain out excess water	As above
Chilli	As above	As above	As above	As above
Tomato	As above	As above	As above	As above

## Heavy rainfall with high speed winds in a short span

<b>Horticulture</b>	
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Outbreak of pests and diseases due to unseasonal rains	Vegetative stage	Flowering stage	Crop maturity stage	Post harvest
Cotton	<b>Insect pest : Aphids &amp; Jassids and Meally bug-</b> Spraying of 5% NSKE followed by Diamethoate 30 EC 10 ml/10 L or Imidacloprid @ 4 ml + 10 lit of water <b>Disease : Alternaria blight-</b> Spraying of copper oxychloride 50 WP, 25 g/10 L	<b>Insect pest : White fly-</b> Spraying of Diamethoate 30 EC, 10 ml/10 L or Methyl demeton @ 15 ml + 10 lit of water <b>Disease : Bacterial Leaf blight-</b> Spraying of streptocyclin 100 ppm (1.0 g) + copper oxychloride 50 WP 25 g/10 L	Pink Boll Worm - Use IPM technology	--
Pearlmillet	<b>Insect pest : Grass hopper-</b> Dusting of methyl parathion 20 kg/ha or 10% Carbaryl	<b>Insect pest : Blister beetle-</b> Dusting of methyl parathion 20 kg/ha	<b>Blister beetle / Heliothis -</b> Spraying of Chlorpyrifos or Quinoliphos @ 20 ml + 10 lit of water	--
Soybean	<b>Insect pest : Leaf eating catterpillar-</b> Use of Pheromon trap, spraying of chloropyrifos 20%, 20ml/10 L	<b>Disease : Rust-</b> Spraying of propiconazole 10 ml/10 L	--	--
Maize	<b>Insect pest: Shoot fly-</b> Spraying of chloropyrifos 20EC , 15 ml per 10 lit.	<b>Insect pest : Spodoptera-</b> Spraying of chloropyrifos 20EC, 20ml per 10 lit. of water	--	--
Sunflower	<b>Insect pest : Thrips-</b> Spraying of imidachloprid 17.8 SL 4 ml/10 L	<b>Insect pest - Hairy catterpillar</b> - Collection and destruction of affected plant parts - Spraying of 50% carbaryl 20 g/10 L	<b>Insect pest – Heliothis-</b> - Chloropyrifos 20 ml / 10 L	

Outbreak of pests and diseases due to unseasonal rains	Vegetative stage	Flowering stage	Crop maturity stage	Post harvest
<b>Horticulture crops</b>				
Onion	<b>Insect pest : Thrips</b> - Spraying of methyl demeton 10 ml/10 L <b>Disease : Alternaria blight-</b> Spraying of mancozeb 75 WP, 25 g/10 L	<b>Insect pest: Thrips</b> - Spraying of methyl demeton 10 ml/10 L <b>Disease : Alternaria blight-</b> Spraying of mancozeb 75 WP, 25 g /10 L <b>Disease : Leaf spot</b> –Spraying of mancozeb 75 WP, 25 g/10 L		<b>Disease : Aspergillus niger-</b> Spraying of mancozeb 75 WP, 25 g/10 L
Chilli	<b>Insect pest : Thrips</b> - Spraying of methyl demeton 10 ml/10 L		<b>Disease: Fruit rot &amp; Anthracnose-</b> Spraying of mancozeb or COC 25 to 30 g/10 lit or carbendazim 50 WP, 10 g/10 L	
Tomato	<b>Disease : Alternaria blight-</b> Spraying of mancozeb 75 WP, 25 g/10 L	<b>Insect pest : Thrips</b> - Spraying of methyl demeton 10 ml/10 L		<b>Disease : Fruit rot -</b> Spraying of copper oxychloride 50 WP, 25 g/10 L

2.3 Floods – Not applicable

2.4 Extreme events: Heat wave / Cold wave/Frost/ Hailstorm /Cyclone : Not applicable

2.5 Contingent strategies for Livestock, Poultry & Fisheries : Separate Chapter given (Animal Component for All District)

