



PUNE DISTRICT

CONTINGENT CROP PLANNING AND AGRO ADVISORY

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2017

STATE: MAHARASHTRA
Agriculture Contingency Plan for District: PUNE

1.0 District Agriculture profile	
1.1	Agro-Climatic/Ecological Zone
	Agro Ecological Sub Region (ICAR)
	Deccan Plateau for Semi – Arid Eco region - AER (6.1)
	Agro-Climatic Zone (Planning Commission)
	Western Plateau and hills region (IX)
	Agro Climatic Zone (NARP)
	Western Maharashtra Plain Zone – ZARS, Ganeshkhind, Pune Western Ghat Zone - ZARS, Igatpuri, Dist. Nashik Western Maharashtra Scarcity Zone (MH-6),- ZARS, Solapur Sub Montane Zone – ZARS, Kolhapur
	List all the districts or part thereof falling under the NARP Zone
	Western Maharashtra Plain Zone – Pune (Eastern Part), Kolhapur, Sangli, Satara, Nashik (Central Part) Western Ghat Zone - Nashik (Western Part), Nandurbar, Satara, Kolhapur, Pune Scarcity Zone - Sangli, Nandurbar, Nasik (Eastern Part), Dhule, Ahmednagar, Pune, Solapur, Satara(Part), Kolhapur (Part), Jalgaon Sub Montane Zone – Part of Satara, Nashik (Western Part) , Kolhapur, Pune
	Geographic coordinates of district headquarters
	Latitude
	Longitude
	Altitude
	16 ⁰ -30' to 22 ⁰ -03'N
	73 ⁰ -47' to 74 ⁰ -40'N
	557.74
	Name and address of the concerned ZRS/ ZARS/ RARS/ RRS/ RRTTS
	Zonal Agricultural Research Station, Western Maharashtra Plain Zone – ZARS, Ganeshkhind, Pune Ph. 020 – 25693750, Fax – 020 – 25698734 email : frganes@dataone.in
	Mention the KVK located in the district
	Krishi Vigyan Kendra, Agricultural Development Trust, Baramat, Dist: Pune Ph. no. 02112 255207, 02112 255227 e-mail: kvkbmt@yahoo.com, Web: www.kvkbaramati.com

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):	480.5	23	1 st fortnight of June	1 st fortnight of October
	NE Monsoon(Oct-Dec):	202.3	12		
	Winter (Jan- Feb)	4.7	2	-	-
	Summer (Mar-May)	57.4	6	-	-
	Annual	744.9	43	-	-

1.3	Land use pattern of the district (latest statistics)	Geographical area	Cultivable area	Forest area	Land 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)	1562.0	945.4	165.1	114.0	74.6	38.1	13.1	147.4	34.5	39.8

Source : Agricultural Statistical Information, Maharashtra State (2006), I & II Volume

1.4	Major Soils	Area ('000 ha)
	Shallow red / grey soils	571.15
	Deep black soils	200.53
	Medium deep black soils	173.31

1.5	Agricultural land use	Area ('000 ha)	Cropping intensity (%)
	Net sown area	945	121
	Area sown more than once	203	
	Gross cropped area	1148	

Source : Agricultural Statistical Information, Maharashtra State (2006), I & II Volume

1.6	Irrigation	Area ('000 ha)		
	Net irrigated area	287		
	Gross irrigated area	313		
	Rainfed area	835		
	Sources of Irrigation	Number	Area ('000 ha)	Percentage of total irrigated area
	Canals	19	121.58	42.36
	Tanks	74	12.77	4.45
	Open wells	90427	92.38	32.19
	Bore wells	--	--	--
	Lift irrigation schemes	41	10.96	3.82
	Micro-irrigation	--	--	--
	Other sources (please specify)	229	49.31	17.18
	Total Irrigated Area		287.00	100
	Pump sets (Diesel + Electrical)	66065	--	--
	No. of Tractors	--	--	--
	Groundwater availability and use* (Data source: State/Central Ground water Department /Board)	No. of blocks/ Tehsils	(%) area	Quality of water (specify the problem such as high levels of arsenic, fluoride, saline etc)
	Over exploited	--		--
	Critical	--		--
	Semi- critical	--		--
	Safe	--		--
	Wastewater availability and use	--		--
	Ground water quality			

(Source – Agricultural Statistical information Maharashtra State 2006 Part -I)

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

1.7	Major Field Crops cultivated	Area ('000 ha)						
		Kharif			Rabi			Summer
		Irrigated	Rainfed	Total	Irrigated	Rainfed	Total	
1	Sorghum		2.8	2.8		427.9	427.9	
2	Sugarcane	85.6		85.6				430.7
3	Paddy		61.2	61.2				85.6
4	Wheat				60.9		60.9	61.2
5	Chick pea				47.4		47.4	60.9
6	Pearl millet		34.5	34.5				47.4
7	Groundnut		31.0	31.0				34.5
8	Maize		5.7	5.7	10.4		10.4	2.1
9	Soyabean		2.4	2.4				1.5
10	Pigeon pea		1.9	1.9				17.6
	Horticulture crops Fruits	Total area ('000 ha)			Irrigated			Rainfed
1	Mango		19.5		19.5			--
2	Sapota		13.8		13.8			--
3	Custard apple		13.2		13.2			--
	Horticultural crops Vegetables	Total area ('000 ha)			Irrigated			Rainfed
1	Onion		19.0		19.0			--
2	Potato		9.5		9.5			--
3	Tomato		6.2		6.2			--
4	Brinjal		3.5		3.5			--
5	Okra		2.1		2.1			--
6	Chilli		2.3		2.3			--
7	Cole crops		5.0		5.0			--

	Horticultural crops - Flowers	Total area ('000 ha)	Irrigated ('000 ha)	Rainfed ('000 ha)
1	Rose	5.00	5.00	--
2	Marigold	2.22	2.22	--
3	Tuberose	0.98	0.98	--
4	Chrysanthemum	0.46	0.46	--
5	Aster	0.45	0.45	--
	Plantation crops	Total area	Irrigated	Rainfed
		NA	NA	NA
	Others such as industrial pulpwood crops etc (specify)			
	Fodder crops	Total area	Irrigated	Rainfed
		NA	NA	NA
	Others (specify)			
	Total fodder crop area			
	Grazing land			
	Sericulture etc			
	Others (Specify)			

1.8	Livestock	Male ('000)	Female ('000)	Total ('000)
	Cow			782.10
	Buffaloes total			303.82
	Commercial dairy farms	NA	NA	-
	Goat			532.82
	Sheep			367.07
	Others(Camel, Pig, Yak, etc.)			-
1.9	Poultry	No. of farms	Total No. of birds ('000)	
	Commercial	NA	2542.15	

Source : Animal Husbandry Provisional 2007

1.10 Fisheries (Data source: Chief Planning Officer)							
A. Capture							
i) Marine	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)		
		NA	NA	NA	NA		
ii) Inland	No. Farmer owned ponds	No. of Reservoirs		No. of village tanks			
	NA	NA	NA	NA			
B. Culture							
	Water Spread Area (ha)	Yield (t/ha)		Production ('000 tons)			
i) Brackish water	NA	NA		NA			
ii) Fresh water	NA	NA		NA			
Others	NA	NA		NA			

1.11 Production and Productivity of major crops (Average of last 5 years: 2004, 05, 06, 07, 08, 09)

1.11	Name of crop	Kharif		Rabi		Summer		Total Production (‘000 t)	Productivity (kg/ha)	Crop residue as fodder (‘000 tons)
		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)										
1	Paddy	76.3	1192.2	--	--	--	--	76.3	1192.2	
2	Sorghum	2.84	930.6	236.12	543.4	--	--	238.96	737.0	
3	Pearl millet	76.34	746.6	--	---	--	--	76.34	746.6	
4	Maize	16.96	2320.8	20.64	2555.20	2.36	1671.80	62.36	2182.6	
5	Pigeon pea	2.08	606.6	--	--	--	--	2.08	606.6	
6	Chick pea	--	--	34.30	692.20	---	--	34.30	692.20	
7	Groundnut	39.18	910.2	--	--	9.66	1928.80	48.82	1419.5	

8	soyabean	3.98	2060.0	--	--	--	--	--	3.98	2060.0	
9	sugarcane	--	--	--	--	--	--	--	6552.22	92000.0	
10	wheat	--	--	119.84	1852.40	--	--	--	119.84	1852.40	

Major Horticultural crops - Fruits

1	Mango	--	--	--	--	--	--	--	78.00	4500	
2	Sapota	--	--	--	--	--	--	--	62.44	12000	
3	Custard apple	--	--	--	--	--	--	--	46.71	7900	

Horticulture – Vegetable

1	Onion	--	--	--	--	--	--	--	245.10	12900	
2	Potato	--	--	--	--	--	--	--	324.90	34200	
3	Tomato	--	--	--	--	--	--	--	97.09	15560	
4	Brinjal	--	--	--	--	--	--	--	85.12	24320	
5	Okra	--	--	--	--	--	--	--	39.27	18700	
6	Chilli	--	--	--	--	--	--	--	153.70	66900	
7	Cole crops	--	--	--	--	--	--	--	101.00	20200	

Horticultural crops - Flowers

1	Rose	--	--	--	--	--	--	--	49.350	9870	
2	Marigold	--	--	--	--	--	--	--	22.240	10000	
3	Tuberose	--	--	--	--	--	--	--	7.856	8000	
4	Chrysanthemum	--	--	--	--	--	--	--	4.600	10000	
5	Aster	--	--	--	--	--	--	--	4.550	10000	

(Source: SAO : Area and productivity projection for Pune 2010-11)

1.12	Sowing window for 5 major field crops (start and end of normal sowing period)	Lowland Paddy	Pearl millet	Groundnut	Sorghum	Chick pea	Wheat
	<i>Kharif</i> - Rainfed	2 nd week of June	15 th June to 15 th July	15 th June to 7 th July	15 th June to 15 th July	--	--
	<i>Kharif</i> -Irrigated	--	--	--	--	--	--
	<i>Rabi</i> - Rainfed	--	--	--	15 th Sept to 15 th Oct	20 th Oct to 10 th Nov	15 th Oct to 15 th Nov
	<i>Rabi</i> -Irrigated	--	--	--	15 th Oct to 30 th Oct		15 th Oct to 15 th Nov

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: Yes
		Soil map as Annexure 3	Enclosed: Yes

2.0 Strategies for weather related contingencies

2.1 Drought

2.1.1 Rainfed situation

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 2 weeks June 4 th week	Shallow red / grey soils	Low land Paddy	Indrayani, Pavana, Phule Samrudhi	Staggered planting in nurseries for timely availability of seedlings	Seed Source: MPKV, Rahuri, College of Agriculture, Pune, Kolhapur, Dhule, NSC, MSSC, Private Co., Distributors. The self help groups should be involved
		Groundnut	JL-24, JL-501, JL-286	Hoeing and weeding	
		Pearl millet	Adishakti, Dhanshakti, Shraddha, Saburi, Shanti	As above	
	Medium deep black Soils	Sorghum	CSH-14, CSH-16, CSH-17	Frequent interculturalations	
		Low land paddy	Indrayani, Pavana, Phule Samrudhi	Staggered planting in nurseries for timely availability of seedlings	
		Groundnut	JL-24, JL-501, JL-286	Hoeing and weeding up to 30 DAS	
		Soybean	Phule Agrani, JS-335, JS-9305	Hoeing and weeding	
	Deep black soils	Pearl millet	Adishakti, Dhanshakti, Shraddha, Saburi, Shanti	Hoeing and weeding	
		Sorghum	CSH-14, CSH-16, CSH-17	Frequent interculturalations	
		Groundnut	JL-24, JL-501, JL-286	Hoeing and weeding up to 30 DAS	
		Pigeon pea	Vipula, BDN-708, ICPL-87	Hoeing and weeding, Opening of conservation furrows after every two rows	

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 4 weeks July 2 nd week	Shallow red / grey soils	Low land Paddy	Indrayani, Pavana, Phule Samrudhi	Staggered planting in nurseries for timely availability of seedlings	Seed Source: MPKV, Rahuri, College of Agriculture, Pune, Kolhapur, Dhule, NSC, MSSC, Private Co., Distributors. The self help groups should be involved
		Groundnut	JL-24, JL-501, JL-286 Groundnut + Pigeon pea (Vipula, BDN 708) (6:2)	Hoeing and weeding Protective irrigation	
		Pearl millet	Adishakti, Dhanshakti, Shraddha, Saburi, Shanti	As above	
	Medium deep black Soils	Sorghum	CSH-14, CSH-16, CSH-17	For shootfly control, seed treatment with Carbosulphan @ 2 g / kg, Intercultivation at 20 DAS and 40 DAS	
		Low land paddy	Indrayani, Pavana, Phule Samrudhi	Staggered planting in nurseries for timely availability of seedlings	
		Groundnut	JL-24, JL-501, JL-286	Hoeing and weeding up to 30 DAS	
		Soybean	JS-335, JS-9305	Hoeing and weeding at 30 DAS	
		Pearl millet	Adishakti, Dhanshakti, Shraddha, Saburi, Shanti	Hoeing and weeding 20 DAS and 40 DAS	
	Deep black soils	Sorghum	CSH-14, CSH-16, CSH-17	Hoeing and weeding 20 DAS and 40 DAS	
		Groundnut	JL-24, JL-501, JL-286	Hoeing and weeding up to 30 DAS	
		Pigeon pea	Vipula, BDN-708, ICPL-87	Hoeing and weeding at 20 DAS Opening of conservation furrows after every two rows	

Condition		Major Farming situation	Normal Crop / Cropping system	Change in crop / cropping system	Suggested Contingency measures		Remarks on Implementation
Early season drought (delayed onset) Delay by 8 weeks 2 nd week of August	Shallow red / grey soils	Low land Paddy	Groundnut	Dolichus sp	-	Hoeing, thinning and weeding before 30 DAS Protective irrigation	Seed Source: MPKV, Rahuri, College of Agriculture, Pune , Kolhapur, Dhule, NSC, MSSC, Private Co., Distributors. The self help groups should be involved
				As above		As above	
				Sorghum	Sunflower (Bhanu) Pigeonpea (Vipula)	Hoeing, thinning and weeding before 30 DAS and protective irrigation in sunflower Hoeing and weeding at 20 DAS Opening of conservation furrows after every two rows in pigeonpea	
	Medium deep black Soils	Low land paddy	Groundnut	Dolichus sp	--		
				Sunflower (Bhanu)		Hoeing and weeding in sunflower at 20 DAS	
				Soybean	Sunflower (Bhanu)	Hoeing and weeding in sunflower at 20 DAS	
				Pearl millet	Sunflower (Bhanu) Or pigeonpea (Vipula/ BDN-708)	Hoeing and weeding in sunflower at 20 DAS Hoeing and weeding at 20 DAS Opening of conservation furrows after every two rows	
	Deep black soils	Sorghum	Groundnut	CSH-14, CSH-16, CSH-17		Protective irrigation Hoeing and weeding 20 DAS and 40 DAS	
				Sunflower (Bhanu)		Hoeing and weeding in sunflower at 20 DAS	
				Vipula, BDN-708, ICPL-87		Hoeing and weeding at 20 DAS Opening of conservation furrows after every two rows	

Condition	Major Farming situation	Normal Crop / Cropping system	Crop management	Suggested Contingency measures		Major Farming situation
Early season drought (Normal onset) followed by 15-20 days dry spell after sowing leading to poor germination / crop stand etc	Shallow red / grey soils	Low land Paddy	-	Seedlings by Dapog method for resowing if needed	For hoeing , prefer slit and entire blade hoe. Can be popularized through govt. programmes	
		Groundnut	Resowing if needed	Intercultivation, weeding and hoeing		
		Pearl millet	As above	As above		
	Medium deep black Soils	Sorghum	Resowing if needed	Intercultivation, weeding and hoeing		
		Low land paddy	-	Seedlings by Dapog method for resowing if needed		
		Groundnut	Resowing if needed	Intercultivation, weeding and hoeing		
		Soybean	As above	As above		
		Pearl millet	As above	As above		
		Deep black soils	Sorghum	-		Intercultivation, weeding and hoeing
	Groundnut		-	Intercultivation, weeding and hoeing		
	Pigeonpea		-	Intercultivation, weeding and hoeing		

Suggested Contingency measures					
Condition	Major Farming situation	Normal Crop / Cropping system	Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period) At vegetative stage	Shallow red / grey soils	Low land Paddy	Protective irrigation	Apply urea brickets	Rainwater harvesting through farm ponds
		Groundnut	As above	Hoeing/Weeding, Use of 8 % kaolin spray, 2 % urea spray	
		Pearl millet	As above	As above, Removal of every third row for fodder	
	Medium deep black Soils	Sorghum	As above	Hoeing/Weeding, Use of 8 % kaolin spray, 2 % urea spray	
		Low land paddy	Protective irrigation	Removal of every third row and use for mulching	
		Groundnut	Protective irrigation	Apply urea brickets	
		Soybean	As above	Hoeing/Weeding, Use of 8 % kaolin spray, 2 % urea spray	
		Pearl millet	As above	As above	
				Removal of every third row for fodder	
	Deep black soils	Sorghum	Protective irrigation	Hoeing/Weeding, Use of 8 % kaolin spray, 2 % urea spray	
		Groundnut	As above	Removal of every third row and use for mulching	
		Pigeonpea	As above	Hoeing/Weeding, Use of 8 % kaolin spray 2 % urea spray	
				As above	

Condition		Normal Crop / Cropping system	Crop management	Soil nutrient & moisture conservation measures	Remarks on Implementation
Mid season drought (long dry spell)	Shallow red / grey soils	Low land Paddy	Protective irrigation	Foliar spray of 2% urea	Rainwater harvesting through farm ponds
		Groundnut	As above	Apply 8 % kaolin spray, 2 % urea spray	
		Pearl millet	As above	As above	
	Medium deep black Soils	Sorghum			
		Low land paddy	Protective irrigation	Foliar spray of 2% urea	
		Groundnut	Protective irrigation	Apply 8 % kaolin spray, 2 % urea spray	
	Deep black soils	Soybean	As above	As above	
		Pearl millet	As above	As above	
		Sorghum	Protective irrigation	Use of 8 % kaolin spray, 2 % urea spray	
		Groundnut	As above	Use of 8 % kaolin spray, 2 % urea spray	
		Pigeonpea	As above	As above	

Condition		Suggested Contingency measures	Condition	Suggested Contingency measures		
Terminal drought (Early withdrawal of monsoon)	Major Farming situation	Major Farming situation	Terminal drought (Early withdrawal of monsoon)	Major Farming situation	Terminal drought (Early withdrawal of monsoon)	Major Farming situation
		Shallow red / grey soils	Low land Paddy			Rainwater harvesting through farm ponds
			Groundnut			
			Pearl millet			
			Sorghum			
			Low land paddy			
			Groundnut			
			Soybean			
			Pearl millet			
			Sorghum			
			Groundnut			
			Pigeonpea			
		Medium deep black Soils				
		Deep black soils				

2.1.2 Irrigated situation

Condition	Major farming situation	Normal crop/cropping system	Suggested contingency measures		Remarks on implementation
			Change in crop/cropping system	Agronomic measures	
Delayed release of water in canals due to low rainfall	Shallow red / grey soils Medium deep black Soils	No crop			Seed source, MPKV, Rahuri, College of Agriculture, Pune, Kolhapur, Dhule, NSC, MSSC, Pvt. Companies, distributors, the self help groups be involved
		Sugarcane	No change	Alternate furrow irrigation	
		Soybean	Pearl millet	Life saving irrigation Hoing, Weeding	
		Maize (Rajarshee)	No change	As above	
		Wheat (Triambak, Tapovan)	No change or gram (Vijay, Digvijay)	Irrigation at critical stages	
		Chickpea (Vijay, Digvijay)	No change	Life saving irrigation Hoing, Weeding	
		Groundnut	Sunflower (Bahnu, Phule Raviraj)+pigeonpea (Vipula) (2:1)	Life saving irrigation Hoing, Weeding	
		Sunflower	Pearl millet (Shradda, Saburi, Shanti)+ Pigeonpea (Vipula, BDN-708, ICPL-87)(2:1)	As above	
		Onion	N-2-4-1, Baswavant-780, Phule Samarth	As above	
		Tomato	Dhanasree, Baghyasree, Phule Raja	As above	
		Brinjal	Hybrid Krishna	As above	
		Potato	Kufri Pokhraj, Kufri Laukar	As above	
		Tuberose	Phule Rajani	As above	
		Aster	-	As above	
		Sugarcane	No change	Alternate furrow irrigation	
Deep black soils	Deep black soils	Onion	N-2-4-1, Baswavant-780, Phule Samarth	Life saving irrigation Hoing, Weeding	
		Tomato	Dhanasree, Baghyasree, Phule Raja	As above	
		Brinjal	Hybrid Krishna	As above	
		Tuberose	Phule Rajani	As above	
		Aster	-	As above	

Condition	Major farming situation	Normal crop/ cropping system	Suggested contingency measures		Remarks on implementation
			Change in crop/cropping system	Agronomic measures	
Limited release of water in canals due to low rainfall	Shallow red / grey soils	No crop			Seed source, MPKV, Rahuri, College of Agriculture, Pune, Kolhapur, Dhule, NSC, MSSC, Pvt. Companies, distributors, the self help groups be involved
	Medium deep black Soils	Sugarcane	No change	Alternate furrow irrigation	
		Soybean	Pearl millet	Life saving irrigation Hoing Weeding	
		Maize (Rajarshee)	No change	As above	
		Wheat(Triambak, Tapovan)	No change or gram (Vijay, Digvijay)	Irrigation at critical stages	
		Chickpea (Vijay, Digvijay)	No change	Life saving irrigation Hoing, Weeding	
		Groundnut	Sunflower (Bahnu, Phule Raviraj)+pigeonpea (Vipula) (2:1)	Life saving irrigation Hoing Weeding	
		Sunflower	Pearl millet (Adishakti, Dhanshakti, Shradda, Saburi, Shanti)+ Pigeonpea (Vipula, BDN-708, ICPL-87) (2:1)	As above	
		Onion	N-2-4-1, Baswavant-780, Phule Samarth	As above	
		Tomato	Dhanasree, Baghyasree, Phule Raja	As above	
		Brinjal	Hybrid Krishna	As above	
		Potato	Kufri Pokhraj, Kufri Laukar	As above	
		Tuberose	Phule Rajani	As above	
		Aster	-	As above	
	Deep black soils	Sugarcane	No change	Alternate furrow irrigation	
		Onion	N-2-4-1, Baswavant-780, Phule Samarth	Life saving irrigation Hoing, Weeding	
		Tomato	Dhanasree, Baghyasree, Phule Raja	As above	
		Brinjal	Hybrid Krishna	As above	
		Tuberose	Phule Rajani	As above	
		Aster	-	As above	

Condition	Major farming situation	Normal crop/ cropping system	Suggested contingency measures		Remarks on implementation
			Change in crop/cropping system	Agronomic measures	
Non release of water in canal under delayed onset of monsoon in catchment	Shallow red / grey soils	No crop			
	Medium deep black Soils	Sugarcane	No change	Alternate furrow irrigation	
		Soybean	Pearl millet	Life saving irrigation Hoing, Weeding	
		Maize (Rajarshee)	No change	As above	
		Wheat (Triambak, Tapovan)	No change or gram (Vijay, Digvijay)	Irrigation at critical stages	
		Chickpea (Vijay, Digvijay)	No change	Life saving irrigation Hoing, Weeding	
		Groundnut	Sunflower (Bahnu, Phule Raviraj)+pigeonpea (Vipula) (2:1)	Life saving irrigation Hoing, Weeding	
		Sunflower	Pearl millet (Shradda, Saburi, Shanti)+ Pigeonpea (Vipula, BDN-708, ICPL-87)(2:1)	As above	
		Onion	N-2-4-1, Baswavant-780, Phule Samarth	As above	
		Tomato	Dhanasree, Baghyasree, Phule Raja	As above	
		Brinjal	Hybrid Krishna	As above	
		Potato	Kufri Pokhraj, Kufri Laukar	As above	
		Tuberose	Phule Rajani	As above	
		Aster	-	As above	
	Deep black soils	Sugarcane	No change	Alternate furrow irrigation	
		Onion	N-2-4-1, Baswavant-780, Phule Samarth	Life saving irrigation Hoing, Weeding	
		Tomato	Dhanasree, Baghyasree, Phule Raja	As above	
		Brinjal	Hybrid Krishna	As above	
		Tuberose	Phule Rajani	As above	
		Aster	-	As above	

Condition	Major farming situation	Normal crop/cropping system	Suggested contingency measures		Remarks on implementation
			Change in crop/cropping system	Agronomic measures	
Lack of inflows into tanks due to insufficient /delayed onset of monsoon	Shallow red / grey soils	No crop			
		Sugarcane	No change	Alternate furrow irrigation	
	Medium deep black Soils	Soybean	No change	Life saving irrigation Hoeing, Weeding	
		Maize (Rajarshee)	No change	As above	
		Wheat (Triambak, Tapovan)	No change or gram (Vijay, Digvijay)	Irrigation at critical stages	
		Chickpea (Vijay, Digvijay)	No change	Life saving irrigation Hoeing, Weeding	
		Groundnut	Sunflower (Bahnu, Phule Raviraj) + Pigeonpea (Vipula) (2:1)	Life saving irrigation Hoeing, Weeding	
		Onion	N-2-4-1, Baswavant-780, Phule Samarth	As above	
		Tomato	Dhanasree, Baghyasree, Phule Raja	As above	
		Brinjal	Hybrid Krishna	As above	
		Potato	Kufri Pokhraj, Kufri Laukar	As above	
		Tuberose	Phule Rajani	As above	
		Aster	-	As above	
	Deep black soils	Sugarcane	No change	Alternate furrow irrigation	
		Onion	N-2-4-1, Baswavant-780, Phule Samarth	Life saving irrigation Hoeing, Weeding	
		Tomato	Dhanasree, Baghyasree, Phule Raja	As above	
		Brinjal	Hybrid Krishna	As above	
		Tuberose	Phule Rajani	As above	
		Aster	-	As above	

Condition	Major Farming situation	Suggested Contingency measures			Remarks on Implementation
		Normal Crop/cropping system	Change in crop/cropping system	Agronomic measures	
Insufficient groundwater recharge due to low rainfall	Shallow red / grey soils – open well irrigated	Fig	No change	Micro site improvement Mulching with residue As above	
		Custard apple	No change		
	Medium deep and deep black Soils - open well irrigated	Sugarcane	No change	Alternate furrow irrigation	
		Soybean	No change	<ul style="list-style-type: none"> Life saving irrigation Hoeing Weeding As above	
		Maize (Rajarshee)	No change		
		Wheat (Triambak, Tapovan)	No change or gram (Vijay, Digvijay)	Irrigation at critical stages	
		Chickpea (Vijay, Digvijay)	No change	<ul style="list-style-type: none"> Life saving irrigation Hoeing Weeding 	
		Groundnut	Sunflower (Bahnu, Phule Raviraj)+pigeonpea (Vipula) (2:1)	<ul style="list-style-type: none"> Life saving irrigation Hoeing Weeding 	
		Onion	N-2-4-1, Baswavant-780, Phule Samarth	As above, Micro irrigation	
		Tomato	Dhanasree, Baghyasree, Phule Raja	As above	
		Brinjal	Hybrid Krishna	As above	
		Potato	Kufri Pokhraj, Kufri Laukar	As above	
		Tuberose	Phule Rajani	As above	
		Aster	-	As above	
		Sapota	No change	Micro site improvement Mulching with residue	
		Guava	No change	As above	

2.2 Unusual rains (untimely, unseasonal etc) (for both rainfed and irrigated situations)

Condition	Suggested contingency measure				
	Crops	Vegetative stage	Flowering stage	Crop maturity stage	Post harvest
Continuous high rainfall in a short span leading to water logging	Low land paddy	--	-	Harvest at physiological maturity	Sorting, drying, cleaning , marketing
	Pearl millet	Drain excess water from field. 2 % urea spray	Drain excess water from field	As above	As above
	Groundnut	As above	As above	As above	As above
	Pigeon pea	As above	As above	As above	As above
	Sunflower	As above	As above	As above	As above
	Sugarcane	As above	As above	As above	As above
	Onion	Planting of border row crops viz. Maize, Mustard, Pearl millet. Application of nitrogen 25% more than recommended dose to avoid leaching losses.	As above	As above	As above
	Tomato	As above	As above	As above	As above
	Cole crop	As above	As above	As above	As above
	Leafy vegetable	As above	As above	As above	As above
	Aster	Drain excess water from field	As above	As above	As above
	Tuberose	As above	As above	As above	As above
	Grape	Drain excess water from field. micro site improvement	As above, Drain excess water from field. Micro site improvement	As above	As above
	Fig	As above	As above	As above	As above
	Custard. apple	As above	As above	As above	As above

2.2 Unusual rains (Untimely, unseasonal, etc) rainfed/irrigated- Condition Heavy rainfall with high speed winds in short span :
Not applicable

Outbreak of pests and diseases due to unseasonal rains

Condition	Major farming situation	Crop/cropping system	Suggested contingency measures			Post harvest
			Vegetative stage	Flowering stage	Crop maturity	
	Shallow red /grey soils	Rice	Blast & Leaf scald: - Carbendazim 0.1% Army worm - Carbaryl 2.5 kg/ha., Stem borer: Soil application Phorate 10G @ 10 kg/ha.	Sheath rot - Carbendazim 0.1% Brown plant hopper- Dust Carbaryl 10% @20 kg/ha.	-	
		Pearl millet	Downy mildew - Metalaxyl 8 % + Mancozeb 64% @ 0.4 % Army worm- Dust Methyl parathion 2% @ 20 kg/ha	Downy mildew	-	
		Groundnut	Tikka- Mancozeb @ 2.5 g/l Leaf roller- Carbaryl 50 WP @ 2 Kg/500 lit water/ha.	Tikka - Mancozeb @ 2.5 g/l Leaf roller- Carbaryl 50 WP @ 2 Kg/500 lit water/ha.		
		Pigeon-pea	Wilt: <i>T. viride</i> 2.5 Kg/ha.	Wilt: <i>T. viride</i> 2.5 Kg/ha.	Pod borer – - Spraying of 5 % NSKE - Use of pheromone traps @ 5 / ha - HNPV 1 ml / lit. spray - Spraying of chlorpyrifos 2 ml / lit., - Emamectin benzoate @ 0.4-0.5 gm/lit.	
		Sunflower	Downy mildew- Metalaxyl 8 % + Mancozeb 64% @ 0.2% Hairy caterpillar & Leaf eating caterpillar: Spray Quinalphos @ 700ml/500lit water/ha.	Downy mildew- Metalaxyl 8 % + mancozeb 64 % @ 0.02 %		

Condition	Major farming situation	Crop/cropping system	Suggested contingency measures			
			Vegetative stage	Flowering stage	Crop maturity	Post harvest
		Sugarcane	White grub - Drenching Chlorpyrifos @ 2.5ml/l Internode borer - Application of 3-4 Trichocards/ha.	White grub - drenching Chlorpyrifos @ 2.5ml/l Internode borer - Use of trichocards		
		Grape	Downy mildew - Metalaxyl 8 % + Mancozeb 64% @ 0.2% Anthracnose - Carbendazim 0.1 % Flea beetle: Malathion 50% 500ml/500ml/ha.	Downy mildew - Metalaxyl 0.1 %, Anthracnose - Carbendazim 0.1 %	Thrips - Methyl dimeton 25% 400ml/500ml/ha. or Thiamethaxem 25% 150 g/ha	
		Onion	Blight - Dithane M-45 @ 0.25%, Thrips - Methyl dimeton 25% 400ml/500ml/ha.	Blight - Dithane M-45 @ 0.25%, Thrips - Methyl dimeton 25% 400ml/500ml/ha.		
		Tomato	Early blight - Dithane M-45 @ 0.25%, Late blight - Metalaxyl @ 0.25%		Buck eye spot - Metalaxyl 8 %	
		Cole crop	Downy mildew - of Metalaxyl 8 % + Mancozeb 64% @ 0.2% Dimond black moth - Quionlphos @ 2ml/l.			
		Leafy vegetable	Blight - Dithane M-45 @ 0.25%			
		Aster	Blight - Dithane M-45 @ 0.25%			
		Tuberose	Blight - Dithane M-45 @ 0.25%, Stem rot - Drenching Captan 0.3%, Thrips- Methyl dimeton 25% 1ml /l.			

2.2 Unusual rains (Untimely, unseasonal, etc) rain fed / irrigated

Condition		Suggested contingency measures		
Flood : Transient water logging / partial inundation	Seedling/nursery stage	Vegetative stage	Reproductive stage	At harvest
1. Sorghum/cereals	<ul style="list-style-type: none"> • Resowing due to high mortality. • Extend the period of transplanting • Open trench or increase aeration of nursery area by increasing drainage or infiltration rate • Plant control measures to be taken up in inside ration of outbreak of pest/disease • Fore warning • Use of polythene sheet on nursery to avoid damage 	<ul style="list-style-type: none"> • Forewarning to farmers regarding abnormal situation to get prepared for abnormality. • Open trench to drain out the excess water from field. • Increase infiltration rate of the cropped area to increase aeration, intake or root system of plants. • Adopt plant protection measures in regards out break of pest/disease. • Input availability against pest/disease out breaks 	<ul style="list-style-type: none"> • Forewarning to farmers regarding ensuing situation • Harvest the produce if it is ready for harvesting • Proper drying and storage of produce. • Send the good quality produce to the market for sale. • Open trench to drain out excess water from field. • Increase infiltration rate of field & increase the aeration of field to improve 	<ul style="list-style-type: none"> • For warning should be given of situation. • Harvest the produce dry it properly and store good place. • If possible, send it to the market for sale, • Adopt plant protection measures. • Arrange for help to farmers through state/central schemes.
2. Rice/Sugarcane	As above	As above	As above	As above
3. Groundnut	As above	As above	As above	As above
4. Pulses	As above	As above	As above	As above
5. Oilseeds	As above	As above	As above	As above
Horticultural				
1. Vegetable leafy	As above	As above	As above	As above
2. Fruit vegetables	As above	As above	As above	As above
3. Tuber vegetable	As above	As above	As above	As above
4. Flower crops	As above	As above	As above	As above
5. Cole crops	As above	As above	As above	As above
Horticultural	As above	As above	As above	As above

2.4 Unusual rains (Untimely, unseasonal, etc) rain fed/irrigated

Condition	Suggested contingency measures		
	Seedling/nursery stage	Vegetative stage	Reproductive stage
Flood : Continuous submergence for more than two days			At harvest
	Not applicable		

Condition Flood : Sea water intrusion	Not applicable
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2.4 Extreme events

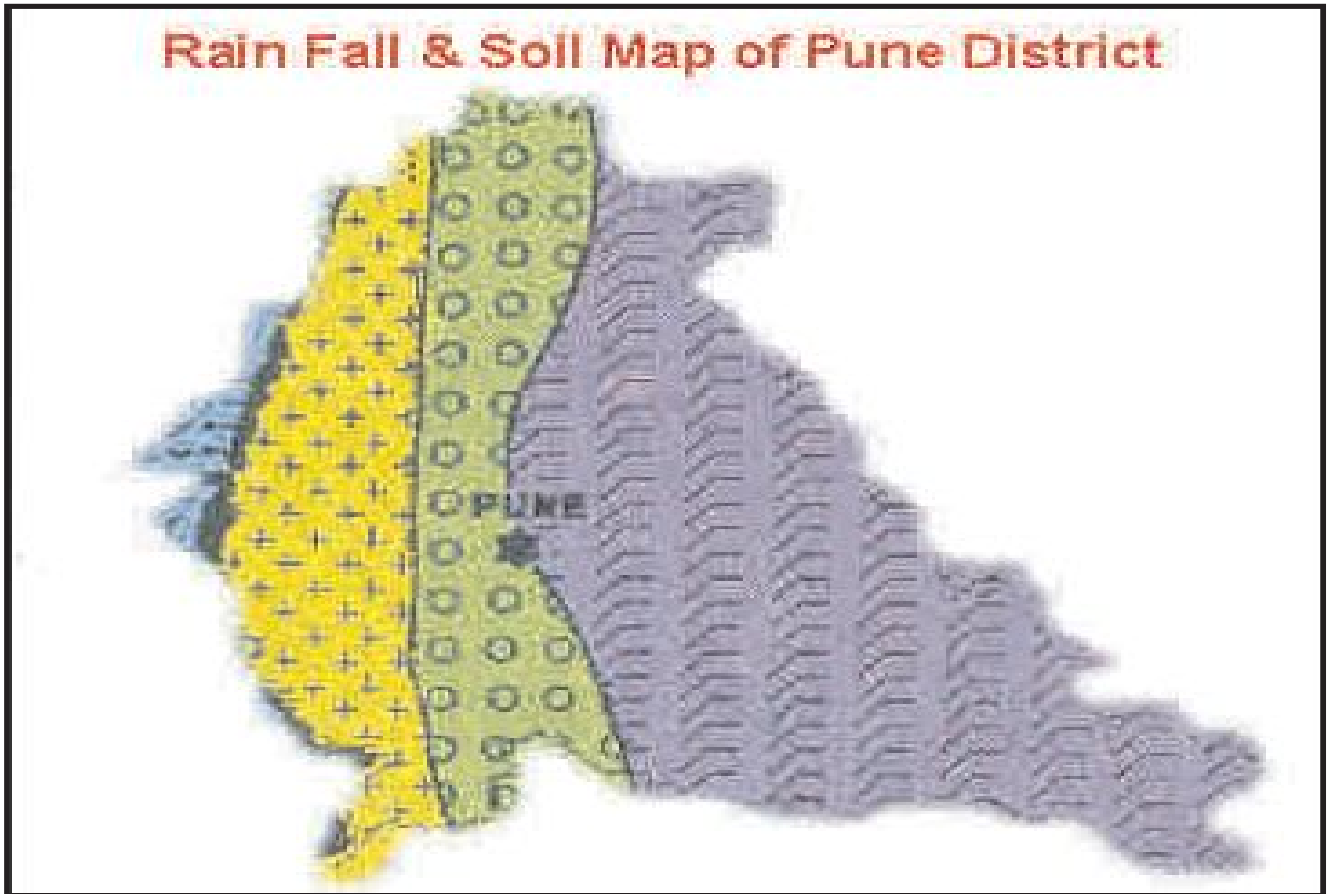
Condition : Heat wave	Not applicable
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Condition : Cold wave	Not applicable
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Condition : Hail storm	Not applicable
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Condition : Cyclone	Not applicable
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Annexure I



Annexure II
Soil Map of Pune District

