KRISHI VIGYAN KENDRA, EAST SINGHBHUM

Agriculture Contingency Plan for East Singhbhum

Strategies for weather related contingencies

2.1 Drought

2.1.1 Rainfed farming situation

Condition			**Suggested Contingency measures**		
Early season drought (delayed onset)	**Major Farming situation[1]**	**Normal Crop / Cropping system**	**Change in crop / cropping system including variety**	**Agronomic measures**	**Remarks on implementation**
Delay by 2 weeks July 1st week	**UPLAND Shallow iron rich, light textured sandy & acidic soil.**	Upland Rice (Sole) Local varieties are cultivated	Advised to cultivate - Upland Rice (Sole), BVD-109, BVD-110, Bandana CR Dhan 40- Short duration should be selected Rice + Brown/ Green manure	Seed treatment with Azotobacter in Rice Chemically Weed suppression	Construct small water harvesting structures that would enable lifesaving irrigation, Maximum use of organic manure- composting - Vermi compost, NADEP
		Pigeonpea + Maize	No Change alternate crops like Pigeonpea+ Turmeric, Pigeonpea+ Okra, Pigeonpea+ mung can be taken up	Line sowing 1:1 ratio for Pigeonpea + Maize For Pigeonpea+ Turmeric the ratio should be 1:1, For Pigeonpea + Okra the ratio should be 1:1, For Pigeonpea + moong the ratio should be 1:2	

[1] Major farming situations are identified on the basis of discussion with block level farmers, extension agents and KVKs.

		Pigeonpea (Sole)	No Change Pigeon pea (UPAS 120 & Manak Short duration variety to be preferred	Sowing across the slope; Seed treatment with Rhizobium in pulse	
		Maize (Sole)	No Change	Sowing across the slope	
		Specific vegetables – Okra, Creepers like ridge gourd, Bottle Gourd, Cow Pea	No Change Specifically for Okra (sole) Arka Anamika/ Samrat, Sonam varieties can be selected	No Change	
		Mango	Mango + Tomato, Mango + Ole (Elephant Foot)	Ring (25cm width) should be made around mango plant and FYM/ vermi-compost should be added and cover mulch with straw and leaves. Pit digging (3m long×1.5m width ×2.5 depth) for storing precipitation may be use as life saving irrigation of mango crop.	
		*Maize and Pigeonpea are cultivated in very small areas and major crops on upland are vegetables –specifically creepers			

Condition	**Suggested Contingency measures**

Early season drought (delayed onset)	Major Farming situation	Normal Crop / Cropping system	Change in crop / cropping system including variety	Agronomic measures	Remarks on implementation
Delay by 4 weeks July 3rd week	**UPLAND Shallow iron rich, light textured sandy & acidic soil.**	Upland Rice (Sole) Local varieties are cultivated	Advised to cultivate - Upland Rice (Sole), BVD-109, BVD-110, Bandana Anjali- Short duration should be selected Rice + Brown manure	Seed treatment with Azotobacter in Rice Dry seeding with 15% to 20% higher seed rate. Chemically Weed suppression	Construct small water harvesting structures that would enable life saving irrigation, Maximum use of organic manure- composting - Vermi compost, NADEP
		Pigeonpea + Maize	No Change alternate crops like Pigeonpea+ Turmeric, Pigeonpea+ Okra, Pigeonpea+ mung can be taken up	Line sowing 1:1 ratio for Pigeonpea + Maize For Pigeonpea+ Turmeric the ratio should be 1:1, For Pigeonpea + Okra the ratio should be 1:1, For Pigeonpea + moong the ratio should be 1:2	
		Pigeonpea (Sole)	No Change Pigeon pea (UPAS 120 & Manak Short duration variety to be preferred	Sowing across the slope; Seed treatment with Rhizobium in pulse Seeding with 15% to 20% higher seed rate.	
		Maize (Sole)	No Change	Sowing across the slope Seeding with 15% to 20% higher seed rate.	

		Specific vegetables/Horticulture – Okra, Creepers like ridge gourd, Bottle Gourd, Cow Pea	No Change Specifically for Okra (sole) Arka Anamika/ Samrat, Sonam varieties can be selected Elephant foot can be cultivated till July Mango and Guava orchard can be established	No Change	
		Mango	Mango + Tomato, Mango + Ole (Elephant Foot)	Ring (25cm width) should be made around mango plant and FYM/ vermicompost should be added and cover mulch with straw and leaves. Pit digging (3m long×1.5m width ×2.5 depth) for storing precipitation may be use as life saving irrigation of mango crop.	
		*Maize and Pigeonpea are cultivated in very small areas and major crops on upland are vegetables – specifically creepers			

Condition	**Suggested Contingency measures**

Early season drought (delayed onset)	Major Farming situation	Normal Crop / Cropping system	Change in crop / cropping system including variety	Agronomic measures	Remarks on implementation
Delay by 6 weeks August 1st Week	**UPLAND Shallow iron rich, light textured sandy & acidic soil.**	Upland Rice (Sole) Local varieties are cultivated	Kulthi – Variety Madhu, Birsa Kulthi -1 Urd – Variety –PU-35	For Kulthi and Urd Use seed rate of 20kg per Ha and maintain spacing of 30cmX10cm. Seed treatment with Rhizobium Make Drainage for removal of excess water	Construct small water harvesting structures that would enable life saving irrigation, Maximum use of organic manure- composting - Vermi compost, NADEP
		Pigeonpea + Maize	Kulthi – Variety Madhu, Birsa Kulthi -1 Urd – Variety –PU-35	For Kulthi and Urd Use seed rate of 20kg per Ha and maintain spacing of 30cmX10cm. Seed treatment with Rhizobium Make Drainage for removal of excess water	
		Pigeonpea (Sole)	No Change Pigeon pea (UPAS 120 & Manak Short duration variety to be preferred	Sowing across the slope; Seed treatment with Rhizobium in pulse Seeding with 15% to 20% higher seed rate. Make Drainage for removal of excess water	
		Maize (Sole)	Kulthi – Variety Madhu, Birsa Kulthi -1 Urd – Variety –PU-35	For Kulthi and Urd Use seed rate of 20kg per Ha and maintain spacing of 30cmX10cm. Seed treatment with Rhizobium. Make Drainage for	

				removal of excess water	
		Specific vegetables – Okra, Creepers like ridge gourd, Bottle Gourd, Cow Pea	No Change in variety for Okra (sole) Arka Anamika/ Samrat, Sonam varieties can be selected	Follow ridge and furrow method for vegetables Mulching (Straw, Leave/ degradable polythene) may be provided for soil and moisture conservation.	
		*Maize and Pigeonpea are cultivated in very small areas and major crops on upland are vegetables – specifically creepers			

Condition			**Suggested Contingency measures**		
Early season drought (delayed onset)	**Major Farming situation**	**Normal Crop / Cropping system**	**Change in crop / cropping system including variety**	**Agronomic measures**	**Remarks on implementation**
Delay by 8 weeks August 3rd Week	**UPLAND Shallow iron rich, light textured sandy & acidic soil.**	Upland Rice (Sole) Local varieties are cultivated	Kulthi – Variety Madhu, Birsa Kulthi -1 Urd – Variety –PU-35 Late Moong – Samrat	For Kulthi, Urd and Moong Use seed rate of 25kg per Ha and maintain spacing of 25cmX10cm. Seed treatment with Rhizobium Make Drainage for removal of excess water	Construct small water harvesting structures that would enable life saving irrigation, Maximum use of organic manure- composting - Vermi compost, NADEP

		Pigeonpea + Maize	Kulthi – Variety Madhu, Birsa Kulthi -1 Urd – Variety –PU-35 Late Moong – Samrat	For Kulthi, Urd and Moong Use seed rate of 25kg per Ha and maintain spacing of 25cmX10cm. Seed treatment with Rhizobium Make Drainage for removal of excess water	
		Pigeonpea (Sole)	Kulthi – Variety Madhu, Birsa Kulthi -1 Urd – Variety –PU-35 Late Moong – Samrat	For Kulthi, Urd and Moong Use seed rate of 25kg per Ha and maintain spacing of 25cmX10cm. Seed treatment with Rhizobium Make Drainage for removal of excess water	
		Maize (Sole)	Kulthi – Variety Madhu, Birsa Kulthi -1 Urd – Variety –PU-35 Late Moong – Samrat	For Kulthi, Urd and Moong Use seed rate of 25kg per Ha and maintain spacing of 25cmX10cm. Seed treatment with Rhizobium Make Drainage for removal of excess water	
		Specific vegetables – Okra, Creepers like ridge gourd, Bottle Gourd, Cow Pea	No Change in varieties for Okra (sole) Arka Anamika/ Samrat, Sonam varieties can be selected	Follow ridge and furrow method for vegetables Mulching (Straw, Leave/ degradable polythene) may be provided for soil and moisture conservation.	

		*Maize and Pigeonpea are cultivated in very small areas and major crops on upland are vegetables – specifically creepers	

Condition			**Suggested Contingency measures**		
Early season drought (delayed onset)	**Major Farming situation**	**Normal Crop / Cropping system**	**Change in crop / cropping system including variety**	**Agronomic measures**	**Remarks on implementation**
Delay by 2 weeks 1st week of July	**MEDIUM LAND** Shallow iron rich, light textured sandy & acidic soil	Rice- Fallow	No Change or Maize +Pigeon pea (This cropping system can only be taken if there is no stagnation of water)	Raising of Nursery through mat method in Rice Adopt community nursery raising For direct seeding increase the seed rate by 15-20% Seed treatment with Azotobacter in Rice Maximum use of organic manure Proper drainage system to protect the crop like maize from water stagnation in case of midland maize cultivation. Staggered nursery raising system need to be follow to avoid overage seedling transplant	Arrangement of supply of Seed through NFSM

		Rice- Vegetable	No Change or Maize +Pigeon pea (This cropping system can only be taken if there is no stagnation of water)	Rich planting method can be follow if vegetable with rice system has been followed	

Condition			**Suggested Contingency measures**		
Early season drought (delayed onset)	**Major Farming situation**	**Normal Crop / Cropping system**	**Change in crop / cropping system including variety**	**Agronomic measures**	**Remarks on implementation**
Delay by 4 weeks 3rd week of July	MEDIUM LAND Shallow iron rich, light textured sandy & acidic soil	Rice- Fallow	Rice- Sahbhagi, Lalat, Abhishek or Maize +Pigeon pea (This cropping system can only be taken if there is no stagnation of water)	Raising of Nursery through mat method in Rice For direct seeding increase the seed rate by 15-20% Adopt community nursery raising Seed treatment with Azotobacter in Rice Maximum use of organic manure Proper drainage system to protect the crop like maize from water stagnation in case of midland maize cultivation. Staggered nursery raising system need to be follow to avoid overage seedling	Arrangement of supply of Seed through NFSM

				transplant	
		Rice-Vegetable	Rice- Sahbhagi, Lalat, Abhishek or Maize +Pigeon pea (This cropping system can only be taken if there is no stagnation of water)	Rich planting method can be follow if vegetable with rice system has been followed	

Condition			**Suggested Contingency measures**		
Early season drought (delayed onset)	**Major Farming situation**	**Normal Crop / Cropping system**	**Change in crop / cropping system including variety**	**Agronomic measures**	**Remarks on implementation**
Delay by 6 weeks 1st Week of August	MEDIUM LAND Shallow iron rich, light textured sandy & acidic soil	Rice-Fallow	Rice- verities like Sahbhagi, Lalat, Abhishek	Raising of Nursery through mat method in Rice For direct seeding increase the seed rate by 15-20% Seed treatment with Azotobacter in Rice Maximum use of organic manure Staggered nursery raising system need to be follow to avoid overage seedling transplant	Arrangement of supply of Seed through NFSM

		Rice- Vegetable	Rice- verities like Sahbhagi, Lalat, Abhishek	Rice/ Vegetable (cucurbitaceous crop) can be taken as sole crop Vegetable should be planted in riches and proper drainage facility should be made to remove access / lodging of water.	

Condition			**Suggested Contingency measures**		
Early season drought (delayed onset)	**Major Farming situation**	**Normal Crop / Cropping system**	**Change in crop / cropping system including variety**	**Agronomic measures**	**Remarks on implementation**
Delay by 8 weeks 3rd Week of August	MEDIUM LAND Shallow iron rich, light textured sandy & acidic soil	Rice-Fallow	Early Vegetables –Tomato, Cauliflower, and Brinjal Sponge Gourd, Okra pea (Vegetables can only be taken if there is no stagnation of water)	Use ridge and furrow for vegetable crops Maximum use of organic manure Proper drainage system to protect the crop like vegetable from water stagnation. Vegetable nursery should be raised with proper protection structure.	Arrangement of supply of Seed through NFSM

		Rice / vegetable	Early Vegetables –Tomato, Cauliflower, and Brinjal Sponge Gourd, Okra pea (Vegetables can only be taken if there is no stagnation of water)		

Condition			**Suggested Contingency measures**		
Early season drought (delayed onset)	**Major Farming situation**	**Normal Crop / Cropping system**	**Change in crop / cropping system including variety**	**Agronomic measures**	**Remarks on implementation**
Delayed by 2 weeks July 1st Week	**LOW LAND** Shallow iron rich , light textured sandy & acidic soil	Rice- Fallow	No Change	Raising of Nursery through mat method in Rice Adopt SRI technology Adopt community nursery raising Staggered nursery raising system need to be follow to avoid overage seedling transplant	Arrangement of supply of Seed through NFSM
		Rice-Vegetables	No Change		

Condition			Suggested Contingency measures		
Early season drought (delayed onset)	**Major Farming situation**	**Normal Crop / Cropping system**	**Change in crop / cropping system including variety**	**Agronomic measures**	**Remarks on implementation**
Delayed by 4 weeks 3rd Week of July	**LOW LAND** Shallow iron rich , light textured sandy & acidic soil	Rice-Fallow	No Change but prefer paddy varieties like- MTU1010, IR-64, IR-36, Lalat, Navin	Raising of Nursery through mat method in Rice Adopt SRI technology Adopt community nursery raising Staggered nursery raising system need to be follow to avoid overage seedling transplant	Arrangement of supply of Seed through NFSM
		Rice	No Change but prefer paddy varieties like- MTU1010, IR-64, IR-36, Lalat, Navin		

Condition			Suggested Contingency measures		
Early season drought (delayed onset)	**Major Farming situation**	**Normal Crop / Cropping system**	**Change in crop / cropping system including variety**	**Agronomic measures**	**Remarks on implementation**
Delay by 6 weeks 1st week of August	**LOW LAND** Shallow iron rich , light textured sandy & acidic soil	Rice-Fallow	Rice var. Lalat, MTU-1010, Abhishek Pro agro-6444 (SRI Technology)	Short to medium duration variety should be sown behind the plough. Adopt SRI technology Adopt community nursery raising Staggered nursery raising system need to be follow to avoid overage seedling	Arrangement of supply of Seed through NFSM

				transplant	
			Rice var. Lalat, MTU-1010, Abhishek		
		Rice	Pro agro-6444 (SRI Technology)		

Condition			**Suggested Contingency measures**		
Early season drought (delayed onset)	**Major Farming situation**	**Normal Crop / Cropping system**	**Change in crop / cropping system including variety**	**Agronomic measures**	**Remarks on implementation**
Delay by 8 weeks 3rd week of August	**LOW LAND** Shallow iron rich , light textured sandy & acidic soil	Rice-Fallow	Start in September – Early Rabi Crops like Kulthi and Linseed, Mustard and Gram can be cultivated in October if the lowland is left fallow (Focus on minimum tillage or zero tillage methods)	Direct Seeded as Paira cropping In case of heavy rainfall –proper drainage system should be made Adopt minimum or zero tillage for early rabi crops Delay in the rabi season crops Use green manuring later with vegetables Use ridge and furrow for vegetable crops Maximum use of organic manure Proper drainage system to protect the crop like vegetable from water	Arrangement of supply of Seed through NFSM
		Rice/ Vegetable	Protected nursery structure should be made for early Vegetables cultivation– Tomato, Cauliflower, and Brinjal Sponge Gourd, Okra pea (Vegetables can only be taken if there is no stagnation of water)		

				stagnation.	

Condition			**Suggested Contingency measures**		
Early season drought (Normal onset)	**Major Farming situation**	**Normal Crop / Cropping system**	**Crop Management**	**Soil nutrient & moisture conservation measures**	**Remarks on implementation**
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc.	**UPLAND Shallow iron rich, light textured sandy & acidic soil.**	Upland Rice (Sole) Local varieties are cultivated	Gap filling, Re sowing Weed management Provide lifesaving irrigation	Maximum use of compost Mulching will conserve moisture	Construct small water harvesting structures that would enable lifesaving irrigation, Maximum use of organic manure- composting - Vermi compost, NADEP
		Pigeonpea + Maize	Gap filling, Re sowing Weed management Earthing up of soil Provide Mulching Provide lifesaving irrigation	Maximum use of compost Mulching will conserve moisture	

		Pigeonpea (Sole)	Gap filling, Re sowing Weed management Earthing up of soil Provide Mulching Provide lifesaving irrigation	Maximum use of compost Mulching will conserve moisture	
		Maize (Sole)	Gap filling, Re sowing Weed management Earthing up of soil Provide Mulching Provide lifesaving irrigation	Maximum use of compost Mulching will conserve moisture	
		Specific vegetables – Okra, Creepers like ridge gourd, Bottle Gourd, Cow Pea (pole type)	Gap filling, Re sowing Weed management Earthing up of soil Provide Mulching Provide lifesaving irrigation	Maximum use of compost Mulching will conserve moisture	
		*Maize and Pigeonpea are cultivated in very small areas and major crops on upland are vegetables – specifically creepers			

Condition			**Suggested Contingency measures**		
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm	**Major Farming situation**	**Normal Crop / Cropping system**	**Crop Management**	**Soil nutrient & moisture conservation measures**	**Remarks on implementation**
At vegetative stage	**UPLAND Shallow iron rich, light textured sandy & acidic soil.**	Upland Rice (Sole) Local varieties are cultivated	Life saving, irrigation, Gap filling Postponement of top dressing of fertilizers	Maximum use of compost as preventive measure Mulching will conserve moisture	Construct small water harvesting structures that would enable life saving irrigation, Maximum use of organic manure-composting - Vermi compost, NADEP
		Pigeonpea + Maize	Life saving, irrigation, Gap filling Postponement of top dressing of fertilizers	Maximum use of compost as preventive measure Mulching will conserve moisture	
		Pigeonpea (Sole)	Life saving, irrigation, Gap filling Postponement of top dressing of fertilizers	Maximum use of compost as preventive measure Mulching will conserve moisture	
		Maize (Sole)	Life saving, irrigation, Gap filling Postponement of top dressing of fertilizers	Maximum use of compost as preventive measure Mulching will conserve moisture	
		Specific vegetables – Okra, Creepers like ridge gourd, Bottle Gourd, Cow Pea	Life saving, irrigation, Gap filling Postponement of top dressing of fertilizers	Maximum use of compost as preventive measure Mulching will conserve moisture	

		*Maize and Pigeonpea are cultivated in very small areas and major crops on upland are vegetables –specifically creepers	

Condition			**Suggested Contingency measures**		
Mid season drought (long dry spells)	**Major Farming situation**	**Normal Crop / Cropping system**	**Crop Management**	**Soil nutrient & moisture conservation measures**	**Remarks on implementation**
At flowering/ fruiting stage	**UPLAND Shallow iron rich, light textured sandy & acidic soil.**	Upland Rice (Sole) Local varieties are cultivated	Life saving irrigation Provide mulching	Provide life saving irrigation	Construct small water harvesting structures that would enable life saving irrigation, Maximum use of organic manure-composting - Vermi compost, NADEP
		Pigeonpea + Maize	Life saving irrigation Provide mulching	Provide life saving irrigation	
		Pigeonpea (Sole)	Life saving irrigation Provide mulching	Provide life saving irrigation	
		Maize (Sole)	Life saving irrigation Provide mulching	Provide life saving irrigation	
		Specific vegetables – Okra, Creepers like ridge gourd, Bottle Gourd, Cow Pea	Life saving irrigation Provide mulching	Provide life saving irrigation	
		*Maize and Pigeonpea are cultivated in very small areas and major crops on upland are vegetables –			

		specifically creepers	

Condition			**Suggested Contingency measures**		
Terminal drought (Early withdrawal of monsoon)	**Major Farming situation**	**Normal Crop / Cropping system**	**Crop Management**	**Rabi Season Planning**	**Remarks on implementation**
At flowering/ fruiting stage	**UPLAND Shallow iron rich, light textured sandy & acidic soil.**	Upland Rice (Sole) Local varieties are cultivated	Life saving irrigation	Plan for - Linseed, Lentil, Horsegram, Cow pea, Field bean; Plan for vegetables like - Potato, Cabbage, Cauliflower, Peas, Tomato	Construct small water harvesting structures that would enable life saving irrigation, Maximum use of organic manure-composting - Vermi compost, NADEP
		Pigeonpea + Maize	Life saving irrigation; Harvest maize for fodder	Plan for - Linseed, Lentil, Horsegram, Cow pea, Field bean; Plan for vegetables like - Potato, Cabbage, Cauliflower, Peas, Tomato	
		Pigeonpea (Sole)	Life saving irrigation;	Plan for - Linseed, Lentil, Horsegram, Cow pea, Field bean; Plan for vegetables like - Potato, Cabbage, Cauliflower, Peas, Tomato	
		Maize (Sole)	Life saving irrigation; Harvest maize for fodder	Plan for - Linseed, Lentil, Horsegram, Cow pea, Field bean; Plan for vegetables like - Potato, Cabbage, Cauliflower, Peas, Tomato	

		Specific vegetables – Okra, Creepers like ridge gourd, Bottle Gourd, Cow Pea	Life saving irrigation Drip irrigation system may be use.	Plan for - Linseed, Lentil, Horsegram, Cow pea, Field bean; Plan for vegetables like - Potato, Cabbage, Cauliflower, Peas, Tomato	
		*Maize and Pigeonpea are cultivated in very small areas and major crops on upland are vegetables – specifically creepers			

Condition			**Suggested Contingency measures**		
Early season drought (Normal onset)	**Major Farming situation**	**Normal Crop / Cropping system**	**Crop Management**	**Soil nutrient & moisture conservation measures**	**Remarks on implementation**
Normal onset followed by 15-20 days dry spell after sowing leading to poor	**MEDIUM LAND** **Shallow iron rich,**	Rice-Fallow	Gap filling, Re sowing Weed management Provide life saving irrigation	Maximum use of compost Mulching will conserve moisture	Construct small water harvesting structures that would enable life saving irrigation, Maximum

germination/crop stand etc.	**light textured sandy & acidic soil**	Rice/ Vegetable	Gap filling, Re sowing Weed management Earthing up of soil Provide Mulching Provide life saving irrigation	Maximum use of compost Mulching will conserve moisture	use of organic manure- composting - Vermi compost, NADEP

Condition			**Suggested Contingency measures**		
Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm	**Major Farming situation**	**Normal Crop / Cropping system**	**Crop Management**	**Soil nutrient & moisture conservation measures**	**Remarks on implementation**
At vegetative stage	**MEDIUM LAND** **Shallow iron**	Rice-Fallow	Life saving, irrigation, Gap filling Postponement of top dressing of fertilizers	Maximum use of compost as preventive measure Mulching will conserve moisture	Construct small water harvesting structures that would enable life saving irrigation, Maximum use of

	rich, light textured sandy & acidic soil	Rice/ Vegetables	Life saving, irrigation, Gap filling Postponement of top dressing of fertilizers	Maximum use of compost as preventive measure Mulching will conserve moisture	organic manure- composting - Vermi compost, NADEP

Condition			**Suggested Contingency measures**		
Mid season drought (long dry spells)	**Major Farming situation**	**Normal Crop / Cropping system**	**Crop Management**	**Soil nutrient & moisture conservation measures**	**Remarks on implementation**
At flowering/ fruiting stage	**MEDIUM LAND** **Shallow iron rich, light textured sandy & acidic soil**	Rice-Fallow	Life saving irrigation Provide mulching	Provide life saving irrigation	Construct small water harvesting structures that would enable life saving irrigation, Maximum use of organic manure- composting - Vermi compost, NADEP
		Rice/ Vegetables	Life saving irrigation Provide mulching	Provide life saving irrigation	

Condition			**Suggested Contingency measures**		
Terminal drought (Early withdrawal of monsoon)	**Major Farming situation**	**Normal Crop / Cropping system**	**Crop Management**	**Rabi Season Planning**	**Remarks on implementation**
At flowering/ fruiting stage	**MEDIUM LAND** **Shallow iron rich, light textured sandy & acidic**	Rice-Fallow	Life saving irrigation	Plan for - Linseed, Lentil, Horsegram, Cow pea, Field bean; Plan for vegetables like -Potato, Cabbage, Cauliflower, Peas, Tomato	Construct small water harvesting structures that would enable life saving irrigation, Maximum use of organic manure-

	soil	Rice/ Vegetables	Life saving irrigation; Harvesting of maize for fodder	Plan for - Linseed, Lentil, Horsegram, Cow pea, Field bean; Plan for vegetables like -Potato, Cabbage, Cauliflower, Peas, Tomato	composting - Vermi compost, NADEP

Condition			**Suggested Contingency measures**		
Early season drought (Normal onset)	**Major Farming situation**	**Normal Crop / Cropping system**	**Crop Management**	**Soil nutrient & moisture conservation measures**	**Remarks on implementation**
Normal onset followed by 15-20 days dry spell after sowing leading to poor germination/crop stand etc.	**LOW LAND** Shallow iron rich , light textured sandy & acidic soil	Rice -Fallow	Gap filling Azola to be integrated with rice cultivation Re sowing	Maximum use of compost	Supply of Seed through NFSM, Construction of percolation tank
		Rice -Vegetable	Gap filling Azola to be integrated with rice cultivation Re sowing		

Condition	**Suggested Contingency measures**

Mid season drought (long dry spell, consecutive 2 weeks rainless (>2.5 mm) period)	Major Farming situation	Normal Crop / Cropping system	Crop Management	Soil nutrient & moisture conservation measures	Remarks on implementation
At vegetative stage	**LOW LAND** Shallow iron rich , light textured sandy & acidic soil	Rice -Fallow	Lifesaving irrigation at 10 to 15 days Foliar spray of Urea 1% and Foliar spray of DAP 1% Or Foliar Spray of liquid organic manure Sanjeevani 5% Or Foliar spray of KCL 2%		
		Rice	Lifesaving irrigation at 10 to 15 days Foliar spray of Urea 1% and Foliar spray of DAP 1% Or Foliar Spray of liquid organic manure Sanjeevani 5% Or Foliar spray of KCL 2%		

Condition	Suggested Contingency measures

Mid season drought (long dry spell)	Major Farming situation	Normal Crop / Cropping system	Crop Management	Soil nutrient & moisture conservation measures	Remarks on implementation
At flowering/ fruiting stage	**LOW LAND** Shallow iron rich , light textured sandy & acidic soil	Rice -Fallow	Life saving irrigation Foliar spray of Urea 1% and Foliar spray of DAP 1% Or Foliar Spray of liquid organic manure Sanjeevani 5% Or Foliar spray of KCL 2%		Construction of Water conservation structures
		Rice -Vegetables	Life saving irrigation Foliar spray of Urea 1% and Foliar spray of DAP 1% Or Foliar Spray of liquid organic manure Sanjeevani 5% Or Foliar spray of KCL 2%		

Condition			**Suggested Contingency measures**		
Terminal drought (Early withdrawal of monsoon)	**Major Farming situation**	**Normal Crop / Cropping system**	**Crop Management**	**Rabi Season Planning**	**Remarks on implementation**
At flowering/ fruiting stage	**LOW LAND** Shallow iron rich , light textured sandy & acidic soil	Rice -Fallow	Life saving irrigation Harvest at physiological maturity stage	Linseed, Lentil, Horse gram, Cow pea, Field bean, Wheat, Chickpea Vegetables- Okra, Sponge Gourd, Bitter	Construction of Water, conservation structures

				Gourd	
		Rice -Vegetable	Lifesaving irrigation Harvest at physiological maturity stage		

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**	**Flowering stage**	**Crop maturity stage**	**Post harvest**
Pigeonpea	Ridge making	Provide drainage	Provide drainage	
Blackgram	Ridge making	Provide drainage	Provide drainage	

Rice	Bund strengthening and repair	Provide drainage	Provide drainage	
Horticulture				
Cucurbits	Staking	Provide drainage	Provide drainage	
Vegetables	Sowing on ridge and arrangement of drainage	Sowing on ridge and arrangement of drainage	Sowing on ridge and arrangement of drainage	
Fruits	Ring making, FYM/ vermicompost application and mulching in mango orchard	Proper drainage can be provided	Harvesting of mango fruit can be avoided.	

Outbreak of pests and diseases due to unseasonal rains			
Pulses	Leaf hoper Buprofezin 5% @1 ml/lit	Aphid- Imidacloprid 17.65@ 0.5ml/lit	Caterpillar- Trizophos 40EC @1.5 ml/lit Soft Rot – COC 50% @2.5 g/lit
Maize	Stem borer Control- Phorate 10G@ 20 kg/ha	Sheath blight Control- Hexaconazole (5%) 1.0 lit in 500 lit water/ha	Shoot Fly- Seed treatment With Inidacloprid@6ml/Kg of seed
Paddy	Green Leaf Hopper- Buprofezin 5% EC@1ml/lit	Blast diseases Control- Tricyclazole (0.05 %)	False Smut Control- Propiconazole 0.1 % or Copper oxy chloride -50 (2 kg/ha)
Okra		YVM Control- Imidacloprid 17.65@ 0.5ml/lit	

Cucurbits	Fruit Fly- apply Carbaryl 0.15 per cent or Malathion 0.1 per cent	Downy Mildew - Dithane M-45, dithane Z-78 or aliette (all 0.3 %) at 10 days interval	Red Pumpkin Beetal- Dusting with 5% Malathion @ 10 kg/ha
Brinjal	Fruit Shoot Borer- Thiacloprid 21.7% w/w @ 1ml/lit	Damping off- Seed treatment with Bivistin 2 gm or Trichoderma viride 6 gm per 100 gm seed.	Phomopsis Blight- Control- Trichoderma viride 6 gm/lit
Tomato	Fruit rot- Control- Nativo @1 gm/lit	Damping off- Seed treatment with Bivistin 2 gm or Trichoderma viride 6 gm per 100 gm seed.	Wilt Fungal- Trichoderma viride 5 gm/lit drenching
Mango	Anthrodness disease(Indofil m-45 0.2%)/ bacterial conker	Anthrodness disease (Indofil m-45 0.2%)/ pollination problem/ powerdry mildew (Just after unseason rainfall) (Vevistin (0.01%) or Salfex (2.0%)) Hopper, Inflorescence	

2.3 Extreme events: Heat wave / Cold wave/Frost/ Hailstorm /Cyclone

Extreme event type	**Suggested contingency measure**			
	Seedling / nursery stage	**Vegetative stage**	**Reproductive stage**	**At harvest**
Heat Wave				
Wheat	Life saving irrigation	Life saving irrigation	Life saving irrigation (Terminal heat)	
Cold wave				

Wheat	Irrigation Balanced fertilizer application Foliar spray of nutrients	Light irrigation Mulching with crop residue/weeds Fertilizer application	Irrigation, fertilizer application	
Vegetables	Raising of seedling in Poly house, re sowing if damaged	Light irrigation Mulching with crop residue/ weeds Disease and pest control, care for chilling injury or replanting	Quick harvesting	Grading, quick disposal for marketing
Pigeonpea		Light irrigation Mulching with crop residue/ weeds		
Frost				
Wheat		Light irrigation Mulching with crop residue/ weeds		
Pigeonpea	Exposure of crop to smoke by burning waste material during night time	Exposure of crop to smoke by burning waste material during night time, Light sprinkler irrigation	Exposure of crop to smoke by burning waste material during night time, Light sprinkler irrigation	Exposure of crop to smoke by burning waste material during night time
Tomato & Potato		Earthing up, Irrigation,		Harvest in dry weather
Horticultural crops (fruit crops)	Light frequent irrigation may be practiced wherever irrigation facilities are available, mulching, thatching and creating smoke screens and lighting of fire is also practiced where irrigation facilities are not available			
Cyclone	Not applicable			
Hailstorm	Not applicable			

2.4 Contingent strategies for Livestock, Poultry & Fisheries

2.4.1 Livestock

	Suggested contingency measures		
	Before the events	**During the event**	**After the event**
Drought			
Feed and fodder availability	Preservation of surplus fodder, encourage fodder cultivation and tree plantation and also encourage supply of molasses to cattle feed plants.	Arrangement of feeds and fodder from adjoining areas, exploitation of non conventional feed resources, use of urea treated straw and feed blocks.	Promotion of fodder seed production, cultivation and storage, establishment of fodder block making machines in fodder surplus areas.
Drinking water	Repairs of tube wells, clear off the sludge in the canals and local water catchments and clean the water tanks, large ponds and lakes	Harnessing water through the existing reservoirs and exploitation of groundwater.	To strengthen reservoirs by promoting recharging of water and rain water harvesting during rainy season.
Health and disease management	Mass vaccination and de worming FMD and PPR	Provide shades to animals and water as much as possible. Treatment of diseased animals and proper disposal of carcasses.	Treatment of diseased animals and provide vitamin and mineral supplement to regain strength and vigour.

2.4.2 Poultry

	Suggested contingency measures			**Convergence/linkages with ongoing programs, if any**
	Before the event	**During the event**	**After the event**	
Drought				

Shortage of feed ingredients	Storage of feed	Provide non conventional feed, supplement anti oxidant and anti-stress		
Drinking water	Storage of water in tanks	Add vit-C and other anti stress ingredients with water		
Health and disease management	Regular vaccination	Vaccination and treatment of diseased one	Disposal of dead birds	

2.4.3 Fisheries/ Aquaculture

	Suggested contingency measures		
	Before the event	**During the event**	**After the event**
1. Drought			
Aquaculture			
(i) Shallow water in ponds due to insufficient rains/inflow	Plough the pond and apply lime@ 250kg/ha	Reduce the stocking density from 25000 fry (1 inches size) to 10000-15000/ ha	Remove the fishes of bigger size(0.5 kg)
(ii) Impact of salt load build up in ponds / change in water quality		Apply lime @ 50 kg on every 15-30 days. Aerate the water as per need	Apply lime as per need @ 50 kg/ha
2. Heat wave and cold wave			
Aquaculture			
(i) Changes in pond environment (water quality)	Reduce application of organic manure and supplementary feeds	Reduce/stop application of feed	Harvest the bigger fishes, reduce/stop application of supplementary feed. Apply lime @ 50 kg/ha and potassium permanganate in perforated plastic

			ball 5- 10g in each ball
(ii) Health and Disease management	Apply lime	Apply lime/salt as per need	Apply lime/salt as per need.

Sd/-

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