I. Weather Conditions at Vijayapura and Northern Dry Zone of Karnataka

Onset of southwest monsoon during 2023 in Vijayapur occurred on June 9th – four days delay than schedule. The dates of onset of monsoon with respect to north Karnataka and Vijayapura Centre are given in Table 1.

Table 1.Date of onset of monsoon at Vijayapura Centre in the year 2023

Onset of monsoon	North Karnataka		Vijayapura Centre	
	Normal date	2023	Normal date	2023
	5th June	8th June	7th June	9th June

Table 2. Daily rainfall data (mm) of Vijayapura Centre during 2023

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
1	0	0	0	0	0	2	0	2	0	0.6	0	0
2	0	0	0	0	0	0	0	1	0	2	0	0
3	0	0	0	0	0	0	0.2	0	0.8	0	0	0
4	0	0	0	0	0	0	0	1.2	35.8	0	0	0
5	0	0	0	0	0	5.4	0	0	3.4	0	0	0.8
6	0	0	0	0	0	0	0.6	0.2	0	0	0	9
7	0	0	0	25	0	0	0	0	0	0	0	0
8	0	0	0	0	0.2	0	0	0	0	0	0	0
9	0	0	0	0	10	3.4	0	0	0	0	0.8	0
10	0	0	0	0	2.6	0	0	0	0	0	9	0
11	0	0	0	0	2.2	0	0	5	0	0	0	0
12	0	0	0	0	0	0	0	13.4	33.4	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0

15	0	0	0	0.2	0	0	0	0	0	0	0	0
16	0	0	1.8	0	0	0	2	1.2	0	0	0	0
17	0	0	0	0	0	0	0	15	0	0	0	0
18	0	0	0	0	0	0	3.6	0	0	0	0	0
19	0	0	0	0	0	7	8.8	0	0	0	0	0
20	0	0	0	0	0	0	1.6	0	0	0	0	0
21	0	0	0	0	0	0	12.6	0	3	0	0	0
22	0	0	0	0	0	0	5	0	0	0	0	0
23	0	0	0	0	0	0	4.8	0	10.6	0	0	0
24	0	0	0	0	3.4	0	3.4	0	0	0	0	0
25	0	0	0	0	0	0	17.4	0	0	0	0	0.8
26	0	0	0	0	0	0.8	8.8	2.6	4	0	0	0
27	0	0	0	0	0	0	20	0	6.4	0	0	0
28	0	0	0	2.2	0	0	1.8	0	0.6	0	0	0
29	0		0	0.8	0	0	1	0	0	0	0.8	0
30	0		0	2.6	12.4	0	0.4	0.2	0	0	0	0
31	0		0		0		0	0		0		0.8
Total	**0.0**	**0.0**	**1.8**	**30.8**	**30.8**	**18.6**	**92.0**	**41.8**	**98.0**	**2.6**	**10.6**	**0.0**
RD	**0**	**0**	**0**	**2**	**4**	**3**	**9**	**4**	**7**	**0**	**1**	**0**
Norm RF	**4.5**	**3.4**	**6.7**	**30.2**	**54.3**	**96.8**	**89.2**	**94.4**	**145.3**	**131.8**	**15.9**	**4.7**
Nor RD	**0**	**0**	**0**	**4**	**3**	**5**	**5**	**6**	**9**	**6**	**1**	**0**

2023 Rainfall	**327.0**	**RD**	**30**	**Normal rainfall**	**677.2**	**RD**	**40**		

During the year 2023 Vijayapur Centre received total rainfall of 327.0 mm, which was about 52 percent less than the normal (677.2 mm). The rainfall distribution was poor during the year with 30 rainy days, as compared to normal rainfall distribution (40 days). Rainfall was normal during April and July, whereas it was below normal or deficit rainfall received during May, June, August, September, October, November and December month in the range of -33 % to -100%.

Table 3. Weekly Meteorological data at Vijayapura Centre for the year 2023

Week No.	Temperature (^{o}C)		Relative Humidity (%)		Wind speed	Sunshine	Rainfall	Rainy days	Pan Evaporation
	Maximum	Minimum	AM	PM	(kmph)	(h)	(mm)		(mm/day)
1	30.4	14.8	80	41	3.0	7.5	0.0	0	3.7
2	29.5	9.3	69	24	2.8	8.7	0.0	0	3.9
3	31.6	12.0	76	28	3.3	9.9	0.0	0	4.3
4	30.6	12.6	81	34	4.3	9.2	0.0	0	4.6
5	30.8	14.1	71	31	4.4	8.4	0.0	0	4.9
6	33.1	14.3	61	23	3.3	9.6	0.0	0	5.2
7	33.6	12.1	50	15	4.5	10.2	0.0	0	6.7
8	34.6	13.5	57	20	3.9	10.1	0.0	0	7.2
9	34.6	15.5	54	17	5.5	9.9	0.0	0	7.3
10	34.2	15.8	57	20	5.9	9.2	0.0	0	7.7
11	34.4	16.9	65	24	5.5	7.6	1.8	0	6.6
12	33.5	16.8	67	24	6.8	9.8	0.0	0	6.5
13	36.3	16.6	55	19	7.1	10.5	0.0	0	9.0
14	36.3	19.3	63	25	7.5	8.8	25.0	1	8.5
15	37.4	19.9	59	21	6.1	9.0	0.2	0	8.3
16	38.6	20.3	63	21	5.1	8.3	0.0	0	7.3
17	37.1	20.4	68	30	7.1	9.6	3.0	0	8.4
18	35.7	20.8	69	30	7.7	9.8	2.6	1	8.2
19	37.2	21.7	82	36	8.1	6.8	15.0	2	6.9
20	39.8	22.2	68	22	10.7	11.0	0.0	0	10.6
21	39.3	21.9	76	27	10.0	9.5	3.4	1	9.1
22	38.8	21.8	78	28	10.0	8.3	14.4	1	8.4
23	38.2	21.4	83	35	11.7	9.2	8.8	2	7.7
24	36.3	20.6	84	39	13.8	10.6	0.0	0	9.0
25	37.0	21.5	86	41	12.0	9.4	7.0	1	8.3
26	33.1	20.3	86	55	14.2	3.5	0.8	0	5.7
27	33.1	20.4	87	55	14.6	3.8	0.8	0	5.6
28	33.2	20.8	85	47	13.8	3.2	0.0	0	6.1
29	28.7	19.9	93	73	13.7	0.8	33.6	4	2.9
30	26.8	19.7	93	77	13.0	0.4	57.2	5	1.9
31	30.0	19.8	90	62	13.3	3.0	4.6	0	3.7
32	31.5	19.2	90	56	11.8	5.5	18.6	2	4.7
33	32.0	19.2	89	48	11.1	6.8	16.2	1	5.1
34	31.6	19.4	88	49	10.8	6.3	2.6	1	5.2
35	33.6	19.5	88	45	9.8	7.6	0.2	0	5.7
36	29.1	19.3	91	66	10.6	2.6	40.0	2	3.5
37	31.9	18.9	92	52	11.2	7.8	33.4	1	5.5
38	32.0	19.5	91	62	9.6	5.8	13.6	2	4.7

Week No.	Temperature (^{o}C)		Relative Humidity (%)		Wind speed	Sunshine	Rainfall	Rainy days	Pan Evaporation
	Maximum	Minimum	AM	PM	(kmph)	(h)	(mm)		(mm/day)
39	30.2	19.7	92	65	5.0	4.1	11.0	2	3.1
40	31.8	18.8	89	44	7.2	5.7	2.6	0	4.9
41	34.1	17.8	74	33	3.9	8.7	0.0	0	4.9
42	33.5	18.1	76	33	3.5	7.6	0.0	0	5.3
43	32.6	14.9	66	29	3.9	9.5	0.0	0	5.6
44	32.1	16.9	78	45	3.5	7.1	0.0	0	4.0
45	30.1	18.3	90	61	3.7	2.7	9.8	1	2.9
46	30.7	15.0	85	41	3.3	7.6	0.0	0	3.9
47	30.9	16.5	86	46	3.7	7.2	0.0	0	3.5
48	30.9	17.8	88	49	4.8	7.2	0.8	0	3.5
49	28.9	15.7	88	52	5.0	4.6	0.0	0	3.1
50	29.6	12.3	85	42	3.0	8.6	0.0	0	3.6
51	28.5	13.1	80	42	3.9	4.4	0.0	0	3.2
52	30.6	10.3	86	34	3.2	9.5	0.0	0	3.8

Seasonal and crop condition in Northern Dry Zone of Karnataka during 2022-23

Month wise normal and actual rainfall (mm) received from January 2023 to December 2023 (Table:1) and weather and crop conditions prevailed during *kharif* season (May 2023 to September 2023) at different Research Stations of Northern Dry Zone of Karnataka, Under University of Agricultural Sciences (UASD) Jurisdiction are presented below. (Table 4).

Analysis of rainfall and crop condition in Zone -3 Research Station

Almel : During *kharif* (May-September) season 2023-24 the Research Station as a whole recorded actual rainfall of 422.8 mm, with 28 rainy days , which is 4.6 % less than the normal of 443.2 mm and being classified under Normal.

Rainfall received during may month (52.8 mm) with 4 rainy days against normal rainfall 21.5 mm of days was helped for land preparation bringing soil to fine tilth and timely sowing of *kharif* crops.

Annigeri : During *kharif* (May-September) season 2023-24 the Research Station as a whole recorded actual rainfall of 569.0 mm, with 41 rainy days , which is 17 % more than the normal of 486.1 mm and being classified under Normal.

Due to delay in arrival of southwest monsoon we could not take sowing of *kharif-2023* seed production activities. However, at later stage we took sowing of maize (African tall) and cowpea. Due to dry spell and depleted soil moisture at grain filling stage the maize yield was affected and same with cowpea yield. Incidence of Aphid was severe in cowpea and stem borer was observed in maize. The control measures were taken however, controlling these two pest was little difficult due to plant height and water stagnation conditions.

Arabhavi: During *kharif* (May-September) season 2023-24 the Research Station as a whole recorded actual rainfall of 325.1 mm, with 30 rainy days , which is 38.8 % less than the normal of 530.9 mm and being classified under Deficit. Rainfall received during may month (58.1 mm) with 6 rainy days, against normal rainfall 175.5 mm of was helped for land preparation bringing soil to fine tilth and timely sowing of *kharif* crops like Soybean, Groundnut, Maize.

Crop Condition: During the year 2023 crops grown during *Kharif* season were Groundnut, Soybean, and Maize (SA Tall). during the month of June -2023 (9.6 mm) very low rainfall so the sowing time of crop was delayed. and the crops sown early by giving irrigation 8 acre were affected due to water logging by heavy rainfall during the month of july-2023(150 mm) . so the crops were affected and there was a reduction in the yield of the crops.

Bagalkote : During *kharif* (May-September) season 2023-24 the Research Station as a whole recorded actual rainfall of 182.5 mm, with 19 rainy days , which is -52.3 % less than the normal of 382.4 mm and being classified under Deficit. May month received deficite amount of rainfall i.e., (7.0 mm) compare to station average rainfall (48.5 mm) June month deficit rainfall effect delayed sowing of *kharif* crops.

Belvatagi: : During *kharif* (May-September) season 2023-24 the Research Station as a whole recorded actual rainfall of 336.9 mm, with 34 rainy days , which is 20.9 % less than the normal of 425.8 mm and being classified under Deficit. Rainfall received during may month (41.63 mm) with 3 rainy days, against normal rainfall 41.63 mm of was helped for land preparation bringing soil to fine tilth and sowing of *kharif* crops like Regram, Maize, Soybean and Cowpea, blackgram. Was done with sprinkler irrigation using farm pond water.

Effect of weather on growth and development of different crops during crop stage.

About 20% deficite rainfall (306mm) received during SW monsoon period was responsible for poor germination, crop growth and development of *kharif* crops. Perennial weed infestation specially Cyprus rotundus severely affected crops and reduced the yield levels.

Incidence of insect pests, disease and weeds: Redgram (*Helicoverpa armigera, Bruchus rotundus*), Maize (*spodoptera frugiperda*), Soybean (Defoliators, podborer), Cowpea (sucking pest, pod borer) were observed and accordingly control measures were taken up.

Gadag : During *kharif* (May-September) season 2023-24 the Research Station as a whole recorded actual rainfall of 331.1mm, with 32 rainy days , which is 29 % less than the normal of 466.2 mm and being classified under Deficit.

Crop condition: Scattered rainfall during pre monsoon (Jan-May) helped in green gram sowing in some areas. In the month of July received (126.5 mm) Rainfall helped in sowing of kharif crops like Chilli, onion, groundnut, maize, etc. Due to low rainfall greengram, maize, onion and chilli crops recorded lower yields.

Pest and Disease scenario: Thrips and Mites in chilli crop, Fall army worm in Maize and Sorghum were observed and Twisting disease was noticed on onion crop. Powdery mildew disease on chilli and Bengalgram crop was also severely noticed, accordingly protection measures were taken up

Hombal: During *kharif* (May-September) season 2023-24 the Research Station as a whole recorded actual rainfall of 493.1 mm, with 32 rainy days , which is 10.2 % more than the normal of 448.1 mm and being classified under Normal.

Due to delay in onset of southwest monsoon we could not take up *kharif*-2023 seed production activities. However, we could take chilli sowing at later stage. Chilli plant growth and development was good in the initial stage however due to dry spell the overall plant development was affected. The pest and disease incidents was not serious till the harvest of red chillies.

Kalloli: During *kharif* (May-September) season 2023-24 the Research Station as a whole recorded actual rainfall of 320.2 mm, with 32 rainy days , which is 13.5 % less than the normal of 370.1 mm and being classified under Normal.

Sowing of Kharif crops were delayed due to low rainfall during June 2023 and crop growth rate was slow and more weed infestation due to continuous rains during July -2023. From August to October 3rd week there was a low rainfall, so flowering and pod setting of soybean were affected severely. In soybean crop Minor incidence of insects and diseases were seen. As a precautionary measures we sprayed chloropyripous 20EC @ 2ml, Lambdacyhalothrin 1 ml, Hexaconozole 1ml/litre of water

Konnur : During *kharif* (May-September) season 2023-24 the Research Station as a whole recorded actual rainfall of 283.5 mm, with 23 rainy days , which is 11.7 % less than the normal of 321.1 mm and being classified under Normal. Rainfall received during may month (16 mm) with 2 rainy days, against normal rainfall 11 mm of was helped for land preparation bringing soil to fine tilth and timely sowing of *kharif* crops like Greengram, Soybean, Groundnut, Onion, Maize, Cowpea and millets etc

Seasonal condition, Impact of weather on crops from sowing to harvest: The early monsoon rainfall received during April, May, June and July months (53.0, 16.0, 20.0 and 106.50 mm, respectively) helped for land preparation and sowing of *kharif* crops like Greengram, Soybean, Groundnut, Onion, Maize, Cowpea and millets etc,. In the month of June, received 20.00 mm of rainfall, which helped for only Greengram sowing and delays other crops for sowing. However, in July 106.50 mm rainfall, which helped for Maize sowing and soybean sowing and leads to Greengram vegetative growth of crop. During the August there was deficit of 11.00 mm of rainfall as compared to normal rains, further the Green gram and Soybean were suffered from moisture deficiency which caused decrease in yields and sowing of seed production plots like millets, cowpea, groundnut Onion and chilli was delayed and resulted in *kharif* crops failure. Later, during September 130 mm, October 0.0 mm and November 11.00 mm

rains received compared to normal rainfall of 117.46 mm, 82.67 mm, 22.06, respectively which were 60 to 80 per cent lower than the average rainfall.

Pest incidence was noticed during cropping period of *Kharif* and control measures were taken. However, disease incidence was observed to Greengram, soybean, cowpea,onion, millets and maize. Further, due sever soil moisture stress and borewell Onion seed production crop is affected with leaf twisting disease. Further, due to pig menace and sclerotium rot in groundnut seed production and yield levels were decreased.

Jhamkhandi/Madhurkhandi: During *kharif* (May-September) season 2023-24 the Research Station as a whole recorded actual rainfall of 302 mm, with 25 rainy days , which is 44 % less than the normal of 548.3 mm and being classified under Deficient. During the *Kharif* season early showers helped the preparation (May-63.8) land preparation. During June (106.3 mm) rainfall facilitated sowing of major *Kharif* crop of greengram , Soyabean, Jowar, Maize, safflowe, and wheat.

Mudhol: During *kharif* (May-September) season 2023-24 the Research Station as a whole recorded actual rainfall of 248.6 mm, with 20 rainy days , which is 30 % less than the normal of 355 mm and being classified under Deficient. No Rainfall received during may month against normal rainfall 54 mm leads to delayed sowing land preparation of *kharif* crops like Bengalgram Soybean, Groundnut, Onion, wheat etc.all the crops was sown under dry condition and later on irrigation were taken.

Crop Pest and Disease Condition: Pest incidence observed on onion (Thrips), Soybean (Laef feeder), Begalgram (Heliothis) and Laef spot disease on Groundnut were observed and accordingly control measures were taken

Vijayapura: During *kharif* (May-September) season 2023-24 the Research Station as a whole recorded actual rainfall of 281.2 mm, with 27 rainy days , which is 41.4 % less than the normal of 480.0 mm and being classified under Deficient. Rainfall received during may (30.8

mm) month against normal rainfall 54.3 mm helped in sowing land preparation of *kharif* crops like Redgram, Greengram, Bajra Onion. etc. all the crops was sown under dry condition and later on irrigation were taken. sterility mosaic virus and wilt disease were observed in pegionpea accordingly control measures were taken.

Table 4 : Month-wise normal and actual rainfall (mm) during 2023-24 at different Research Stations of Zone-3

Month	Almel			Annigeri			Arabhavi			Bagalkot			Belvatagi			Gadag		
	Normal	Actual	%Dev	Normal	Actual	%Dev	Normal	Actual	% Dev	Normal	Actual	% Dev	Normal	Actual	% Dev	Normal	Actual	% Dev
Jan-2023	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	1.9	0	0	3.5	0	0	0.4	0.0	0.0
Feb-2023	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.3	0	0	2.1	0	0	2.1	0.0	0.0
Mar-2023	2.7	0	-100	22.1	0.0	-100.0	0.0	2.2	0.0	7.9	0	-100.0	12.1	0	-100.0	8.4	0.0	-100.0
Apr-2023	12.4	28	125.8	38.1	21	-44.9	69.2	3.2	-95.4	20.8	29.5	41.8	31.4	113.9	263.3	36.3	23.3	-35.8
Pre monsoon	**15.1**	**28**	**85.4**	**61.8**	**21**	**-66.0**	**69.2**	**5.4**	**-92.2**	**30.9**	**29.5**	**-4.5**	**49.0**	**113.9**	**132.7**	**47.2**	**23.3**	**-50.6**
May-2023	21.5	52.8	145.6	77.3	137.4	77.7	175.5	58.1	-66.9	**48.5**	7	-85.6	41.6	30.8	-26.0	81.4	36.9	-54.7
Jun-2023	136	11	-91.9	82.0	52	-36.6	21.8	9.6	-56.0	98.9	19	-80.8	89.4	42.2	-52.8	89.9	32.8	-63.5
Jul-2023	85.6	243	183.9	75.3	190.2	152.6	127	150	18.1	**43.1**	104.5	142.5	86.8	117.5	35.4	80	126.5	58.1
Aug-2023	78.1	42	-46.2	93.0	128.8	38.5	63.8	25.2	-60.5	**73**	16	-78.1	82.0	94.5	15.3	90.6	56.5	-37.6
Sep-2023	122	74	-39.3	158.5	60.6	-61.8	142.8	82.2	-42.4	**118.9**	36	-69.7	126.0	51.9	-58.8	124.3	78.4	-36.9
Monsoon	**443.2**	**422.8**	**-4.6**	**486.1**	**569**	**17.0**	**530.9**	**325.1**	**-38.8**	**382.4**	**182.5**	**-52.3**	**425.8**	**336.9**	**-20.9**	**466.2**	**331.1**	**-29.0**
Oct-2023	95.2	0.0	-100.	94.6	4.6	-95.1	157.7	14.6	-90.7	**99**	2	-98.0	76.0	0	-100.0	121.6	9.3	-92.4
Nov-2023	18.7	0.0	-100	40.6	30.2	-25.6	0.0	25	0.0	16	20	25	33.5	60.1	79.6	41.8	50.6	21.1
Dec-2023	0.0	0.0	0.0	2.3	0.0	0.0	8.6	27	0.0	8.8	0	0	4.8	0	0	6.6	0.0	0.0
Post monsoon	**113.9**	0.0	0.0	137.4	**34.8**	**-74.7**	**166.3**	**66.6**	**-60.0**	**123.8**	**22**	**-82.2**	**114.2**	**60.1**	**-47.4**	**170**	**59.9**	**-64.8**
2023 Total	**572.2**	**450.8**	**-21.2**	**685.3**	**624.8**	**-8.8**	**766.4**	**397.1**	**-48.2**	**537.1**	**234**	**-56.4**	**589.0**	**510.9**	**-13.3**	**683.4**	**414.3**	**-39.4**

Table 4 : Month-wise normal and actual rainfall (mm) during 2023-24 at different Research Stations of Zone-3

Month	Kalloli			Konnur			Jhamkhandi			Mudhol			Hombal			Vijayapura		
	Normal	Actual	%Dev	Normal	Actual	%Dev	Normal	Actual	% Dev	Normal	Actual	% Dev	Normal	Actual	% Dev	Normal	Actual	% Dev
Jan-2023	3.0	0.0	0.0	0.0	0.0	0.0	3.1	0	0	0.0	0.0	0.0	0.5	0.0	0.0	4.5	0.0	0.0
Feb-2023	0.8	0.0	0.0	0.0	0.0	0.0	1.4	0	0	0.0	0.0	0.0	0.4	0.0	0.0	3.4	0.0	0.0
Mar-2023	0.3	11.2	4207.7	0.7	0.0	-100.0	5.3	20.2	0	5.0	0.0	-100.0	16.9	0.0	-100.0	6.7	1.8	-73.1
Apr-2023	18.0	20.6	14.6	12	53	341.7	15.3	9.6	-37.3	24	9.6	-60.0	46.9	24	-48.8	30.2	30.8	1.9
Pre monsoon	**22.0**	**31.8**	**44.3**	**12.7**	**53**	**317.3**	**25.1**	**29.8**	18.7	**29**	**9.6**	**-66.9**	**64.6**	**24**	**-62.9**	**44.9**	**32.6**	**-27.4**
May-2023	61.1	113.6	85.8	11	16	45.5	48.7	63.8	31.0	54	0.0	-100.0	65.4	75	14.7	54.3	30.8	-43.3
Jun-2023	65.5	12.4	-81.1	126.2	20	-84.2	89	15.2	-82.9	75	15	-80.0	82.3	16.6	-79.8	96.8	18.6	-80.8
Jul-2023	106.6	108.4	1.7	27.1	106.5	293.0	62.5	106.3	70.1	57	151	164.9	79.1	159.4	101.6	89.2	92.0	3.2
Aug-2023	22.4	11.0	-51.0	33.1	11	-66.8	56.6	8.3	-85.3	53	20	-62.3	95.1	92.6	-2.6	94.4	41.8	-55.7
Sep-2023	114.5	74.8	-34.7	123.7	130	5.1	128.8	66.6	-48.3	116	62.6	-46.0	126.2	150.2	19.0	145.3	98.0	-32.5
Monsoon	**370.1**	**320.2**	**-13.5**	**321.1**	**283.5**	**-11.7**	**385.6**	**260.2**	-32.5	**355**	**248.6**	**-30.0**	**448.1**	**493.8**	**10.2**	**480.0**	**281.2**	**-41.4**
Oct-2023	115.3	6.0	-94.8	167.9	0.0	-100.0	103.2	10.8	-89.5	104	0.0	-100.0	96.3	3.2	-96.7	131.8	2.6	-98.0
Nov-2023	18.3	20.0	9.5	49	11	-77.6	27.9	1.2	0	19	38	100	28.5	25.2	-11.6	15.9	10.6	-33.3
Dec-2023	4.8	46.2	0.0	0.0	0.0	0.0	6.5	0	0	5	0.0	0.0	3.07	0.0	0.0	4.7	0.0	-100.0
Post monsoon	**138.4**	**72.2**	**-85.3**	**216.9**	**11**	**-94.9**	**137.6**	**12**	-91.3	**128**	**38**	**0.0**	**127.9**	**28.4**	**-108.3**	**152.4**	**13.2**	**-231.3**
2023 Total	**530.6**	**424.2**	**-20.0**	**550.7**	**347.5**	**-36.9**	**548.3**	**302**	**-44.9**	**512**	**296.2**	**-42.1**	**640.6**	**546.2**	**-14.7**	**677.2**	**327.0**	**-51.7**

II. PROJECT DETAILS

2.1	**Title of the Project**	Gramina Krishi Mausam Seva
2.2	**IMD, MoES Sanction number and Date**	Letter of DGM, India Meteorological Department, Government of India, New Delhi, No. ASC/KT-11/ HQ- 2007 Dated 17.08.2021
2.3	**Name of the AMFU**	Garmin Krishi Mausam Seva, Regional Agricultural Research Station, Vijayapura– 586 101, Karnataka
2.4	**Agro-climatic zone**	All India - Zone-10 (Southern Plateau and Hills) Karnataka-Zone-3 (Northern Dry Zone)
2.5	**NARP headquarters**	Regional Agricultural Research Station, Vijayapura-586 101, Karnataka

2.6 Name and Address with office and residential telephone numbers along with STD code

		Phone Number		**Fax**
		Office	**Residence**	
Dr. P. L. Patil	Vice-Chancellor, UAS Dharwad-580 005, Karnataka E-mail : vc-uasd@rediffmail.com	2447783 (0836)	2447972 (0836)	2448349 (0836)
Dr. B. D. Biradar	Director of Research, UAS, Dharwad-580 005, Karnataka E-mail : druasd@rediffmail.com	2745903 (0836)	2435407 (0836)	2748377 (0836)
Dr. Ashok S. Sajjan	Associate Directors of Research Regional Agricultural Research Station, Vijayapura-586 101, Karnataka E-mail : adrbjp@uasd.in	230512 (08352)	276124 (08352)	230512 (08352)
Dr. K. G. Sumesh	Nodal Officer (IAAS) Regional Agricultural Research Station, Vijayapura-586 101 E-mail : biapuragromet@rediffmail.com	230594 (08352)	267117 (08352)	230594 (08352)
Ms. Lavanya P.	Technical Officer (IAAS) Regional Agricultural Research Station, Vijayapura-586 101 E-mail :lavanyaparashuram1807@gmail.com	230594 (08352)	8867416554	230594 (08352)

2.7 Fax number : 08352-230594

2.8. E-mail : bijapuragromet@rediffmail.com

2.9 Date of start of Agro-Advisory Bulletins : 9th July 1996

2.10 Nearby AIR- - AIR, Vijayapura (FM Station) : 8 km
- AIR, Gulbarga : 160 km

TV Station - Bangalore : 550 km

2.11 Railway Station - Vijayapura : 10 km

III.STATUS OF AGROMETEOROLOGICAL OBSERVATORY

3.1 Date of installation of the observatory : 01-07-1982

3.2 Owner of the observatory : University of Agricultural Sciences, Dharwad
Regional Agricultural Research Station,
Vijayapura-586 101, Karnataka

3.3 List of Instruments presently available in working condition

Sl, No.	Name of the instrument	Sl. No.	Name of the instrument
1	Rain gauge	5	Wind vane
2	Self recording rain gauge	6	Pan evaporimeter
3	All screen thermometers	7	Soil thermometers
4	Anemometer	8	Sunshine recorder

3.4 Is there arrangement of spare thermometer and rain gauge in the event of their breakage or theft — Yes

3.5 Instruments to be replaced and repaired, indicating the type of defect — Nil

3.6 Number of years of data record available — 30 years

3.7 Whether the observatory is periodically inspected, maintained and calibrated by IMD — The observatory was last inspected by IMD personnel during March 2021.

3.8 Details of soil moisture observation taken if any — Yes

3.9 Is the observer of the observatory trained by the IMD and is under your direct control or belonging to another non-IMD observatory. — The observer is trained by the IMD and he is under the control of Agromet unit

3.10 Is there a stand by trained observer for taking observations in the event of the regular observer going on leave due to sickness etc? If not, what is the arrangement for taking observations? — Yes.

3.11	**Were observations taken and recorded regularly. If not the duration and causes of break in observation**	Yes.
3.12	**What is the arrangement of security of the observatory?**	The observatory is under the custody of the UAS Dharwad, RARS Vijayapura and there is regular watching arrangement by the Authorities.

IV. DETAILS OF AGROMET ADVISORY SERVICES:

4.1 Whether forecasts are received biweekly or weekly:

The forecasts are received biweekly (twice in a week).

4.2 How many times the weather forecasts were received during the year?

The weather forecasts were received 104 times during the year.

4.3 How many AAS bulletins were prepared and disseminated to the farmers?

1. Ninety bulletins were prepared both in Regional and English languages (word and PDF format) and were disseminated to IMD Bangaluru, KVK, State department of Agriculture, Horticulture, Animal Husbandry, Raita samparka Kendras, crop growers association, FPO ,Print media, Dooradarshana, and also uploaded in the IMD website.
2. Ninety online bulletins for Vijayapura and Gadag districts were prepared in **agromet.imd.gov** and uploaded in **imdagrimet.gov.in** web site.
3. Hundred and eighty online bulletins for all five tallukas of Vijayapura and Gadag district were prepared in **agromet.imd.gov** and uploaded in **imdagrimet.gov.in** web site.

4.4 List mode of mass communication adopted for AAS dissemination.

The weather forecast and Agro Advisory bulletins were sent to

1 District Information and Publicity Officer, Vijayapura.
2. JDA, ADA, Raita samparka kendras of line departments of Vijayapura districts.
3. Sent to met center, Bangaluru.
4. Local News Papers, TV Channels.
5. President of different Gram Panchayats and NGos located in Vijayapura taluk.
6. Honorary Secretary, Karnataka Grape Growers Association, Vijayapura.
7. To Talukawise WhattsApp groups of farmers (12 WhatsApp groups in five talukas covering 233 villages and 1250 farmers in Vijayapura District and one whats app group in Gadag district-covering 15 villages and 250 farmers).
8. **SMS messages twice in a week (nearly 2 lakh per week), were sent to farmers through m-kissan portal during part of the year later it was stopped due to technical error observed in the portal .**
9. Uploaded in the IMD website, bijapuragromet.org website.

4.5 Details of broadcast on AIR and TV :

The weather forecast and bulletins are being broadcast from AIR, and AIR, Vijayapura regularly.

The weather forecast and bulletins were sent to the ETV (Kannada), Hyderabad that broadcasts frequently.

4.6 Give list of farmer's awareness programs conducted like Krishi Melas, Training, Participation in National day parades etc.

Nodal Officer and Technical Officer organized the FAP, training programs under GKMS project and also attended as resource persons in training programs and bimonthly workshop for state department staff of the Vijayapura district and in the training programs organized by KVK for farmers.

Sl. No	Programme	Place	Date	No. of farmers attended
1	Farmers Awareness programs Under GKMS Project	RSK Talikote	31-01-2024	95
2		Hoovina Hipparagi (Tq: B. Bagewadi)	08-02-2024	85
3	Classes on Climate change and about GKMS Project	RARS Vaijayapura,	2 classes by TO	60 trainees in each class

Farmers Awareness Programme

Inauguration of farmers awareness programme at RSK Talikote on 31-01-2024

Dr. R. B. Jolli SFS RARS Vijayapura , Adressing the farmers at RSK Talikot on 31-01-2024

Nearly 95 members farmers attended

Ms. Lavanya P. TO GKMS Vijayapura , Adressing the farmers at RSK Talikot on 31-01-2024

Dr. Ashok S. Sajjan ADR RARS Vijayapura were Addressed the Farmers Nearly 85 members farmers attended RSK Hoovina Hipparagi (Tq: Basavana Bagewadi) 08-02-2024

Ms. Lavanya P. Technical Officer Adressing the farmers RSK Hoovina Hipparagi (Tq: Basavana Bagewadi) 08-02-2024

Ms. Lavanya P. Technical Officer Adressing the students at One day tarining programme for final year Undergraduate students & Visit to Agromet observatory

Progressive farmer speech during Farmer awareness programme at Village Gotyala (Tq: Indi) on 09-01-2023

Visit to Agromet Observatory Undergraduate students Visited Agromet observatory RARS Vijayapura.

V. VERIFICATION OF THE FORECAST (2023-24)

The weather forecasts received from IMD, Met Centre, Bangalore during 2023-24, for Vijayapura and Gadag districts were compared with the actual weather data realized at RARS, Vijayapura and ARS, Gadag respectively, to assess validity of the forecast. One hundred forecasts for 524 days were received during the year. The year was divided into four seasons, viz., Pre-monsoon, Monsoon, Post-monsoon and Winter Seasons and the season-wise and day wise verification of the forecast was carried out.

5.1 Error Structure:

The verifications were performed using the error structure sent by the Director (Agrimet) , Pune. The error structure used for rainfall, Cloud Cover, wind speed, wind direction, Maximum and Minimum temperatures and maximum and Minimum Relative humidity are as given below. forecasts received during the year 2023-24, were qualitatively and quantitatively using this error structure and also various test were carried out to know the skill of the forecast.

	For daily rainfall	
	Observed < 10.0 mm	**Observed > 10.0 mm**
Correct	Diff < = 2.5 mm	<= 25 % of observed
Usable	Diff > 2.5 mm < 5.0 mm	Diff > 25 % but < 50 % of the observed
Unusable	Diff > 5.0 mm	Diff > 50 % of observed

Parameters	**Correct**	**Usable**	**Unusable**
Cloud Cover	Diff < = 2 Okta	2 Okta> Diff ≤ 3 Okta	Diff > 3 Okta
Wind Speed	Diff ≤2 m/s (≤7.2 kmph)	2 m/s > Diff ≤ 4 m/s (7.2-14.4 kmph)	Diff > 4 m/s (14.4 kmph)
Wind Direction	Diff < = 30 degree	Diff > 30 degree but < 40 degree	Diff > 40 degree
Max. and Min. Temperature	Diff ≤ 1^0 C	1^0C > Diff ≤ 2^0C	Diff > 2^0C
Max. and Min. Relative Humidity	Diff ≤ 10 %	Diff > 10 % but ≤ 20 %	Diff > 20 %

5.2 Results:

The results and the summery of the various tests carried out for different weather parameters are given in the table from 6 to 13 for Vijayapura district and from 14 to 21 for Gadag district.

Table 6.Season wise- Day wise Verification of Cloud cover Forecast of Vijayapura district.																				
Tests	Pre - monsoon					Monsoon					Post - Monsoon					Winter				
	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day
RMSE	2.77	2.77	2.93	2.6	2.9	3	3.12	3.04	3.1	3.4	4.5	4.22	3.41	3.2	3.1	1.61	1.48	1.68	1.9	1.6
r	0.10	0.46	0.20	0.2	0.1	0.5	0.49	0.47	0.3	0.2	-0.18	-0.37	0.14	0.1	0.1	0.26	0.0	0.05	0	0.1
	Success Per cent					Success Per cent					Success Per cent					Success Per cent				
Correct	43.5	26.1	39.1	47.8	43.5	51.4	37.1	45.7	42.9	28.6	25	20.8	41.6	29.1	45.8	88.2	88.2	88.2	88.2	82.3
Usable	47.8	69.6	43.5	39.1	43.5	28.6	40.0	22.9	31.4	28.6	25	20.8	29.1	41.6	29.1	5.8	11.7	5.8	0	11.7
Unusable	8.7	4.4	17.4	13.0	13.0	20.0	22.9	31.4	25.7	42.9	50	58.3	29.1	29.1	25	5.8	0	5.8	11.7	5.8
Summary : Success percentage of correct + usable events of cloud cover forecast was satisfactory during all the days of all the seasons. RMSE was satisfactory during pre-monsoon and monsoon seasons whereas it was high during post monsoon and winter seasons.																				

Table 7.Season wise- Day wise Verification of Rainfall Forecast of Vijayapura district.																				
Tests	Pre - monsoon					Monsoon					Post - Monsoon					Winter				
	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day
RMSE	1.38	1.73	2.51	5.9	2.4	4.82	6.33	5.99	7.9	5.4	1.32	1.12	0.84	0.8	0.6	0	0	0	0	0.0
r	0.74	0.63	0.23	-0.04	0.2	0.47	0.31	0.45	0.1	0.1	0	0	0	0	0.7	0	0	0	0	0
	Success Per cent					Success Per cent					Success Per cent					Success Per cent				
Correct	90.0	87.5	100	83.3	94.4	66.7	68.4	68.2	88.2	82.4	95.2	100	100	100	100	100	100	100	100	100
Usable	10.0	12.5	0	11.1	0.	16.7	5.3	9.1	0.0	5.9	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unusable	0	0	0	5.6	5.6	16.7	26.3	22.7	11.8	11.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Summary : Success percentage of correct + usable events of rainfall forecast was satisfactory during all the days of all the seasons. RMSE was satisfactory during pre-monsoon and post monsoon seasons whereas it was high during monsoon seasons.																				

Table 8.Season wise- Day wise Verification of Wind speed Forecast of Vijayapura district.																				
Tests	Pre - monsoon					Monsoon					Post - Monsoon					Winter				
	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day
RMSE	6.9	7.4	6.7	7.2	8.1	7.9	7.2	8.3	7.7	8.2	8.2	6.9	7.8	7.4	38.6	8.4	6.4	7.6	6.6	7.0
r	0.3	-0.1	0.0	0.1	0.1	0.2	0.4	0.2	0.4	0.2	-0.1	-0.1	0.0	-0.3	0	0.1	0.5	0.2	0.4	0.3
	Success Per cent					Success Per cent					Success Per cent					Success Per cent				
Correct	73.9	69.5	69.5	69.5	56.52	62.8	71.4	57.1	68.5	60	66.6	70.8	66.6	75	70.83	58.8	76.4	70.5	82.3	73.9
Usable	21.7	21.7	26.0	21.7	39.13	28.5	25.7	34.2	25.7	34.2	20.8	29.1	25	16.6	25	29.4	17.6	23.5	5.8	21.7
Unusable	4.4	8.7	4.4	8.7	4.4	8.6	2.9	8.6	5.7	5.7	12.5	0.0	8.3	8.3	4.2	11.7	5.8	5.8	11.7	4.4
Summary : Success percentage of correct + usable events of cloud cover forecast was satisfactory during all the days of all the seasons. RMSE was high during all seasons.																				

Table 9.Season wise- Day wise Verification of Wind direction Forecast of Vijayapura district.																				
Tests	Pre - monsoon					Monsoon					Post - Monsoon					Winter				
	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day
RMSE	91.2	94.1	89.6	90.6	86.6	52.5	42.1	50.8	48.3	44.1	74.8	61.1	64.2	63.4	67.7	77.0	74.4	94.7	92.5	88.9
r	0.5	0.8	0.8	0.7	0.7	0.9	1.0	0.7	0.7	1.0	1.0	0.8	0.9	1	1	0.7	0.9	1.0	0.8	0.8
	Success Per cent					Success Per cent					Success Per cent					Success Per cent				
Correct	0	0	8.7	8.7	0	0.0	8.6	5.7	2.9	8.6	0.0	4.2	0.0	0.0	0.0	35.3	35.3	41.2	35.3	41.2
Usable	0	0	0.0	0.0	0	2.9	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unusable	100	100	91.3	91.3	100	97.1	88.6	94.3	97.1	91.4	100	95.8	100	100	100	64.7	64.7	58.8	64.7	58.8
Summary : Success percentage of correct + usable events of cloud cover forecast was satisfactory during winter seasons. RMSE was high during all seasons .																				

Table 10.Season wise- Day wise Verification of Maximun Temperature Forecast of Vijayapura district.																				
Tests	Pre - monsoon					Monsoon					Post - Monsoon					Winter				
	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day
RMSE	8.26	1.6	1.69	1.68	8.4	5.72	2.3	3.01	7.9	2.7	1.93	6.5	6.3	6.9	6.6	14.81	12.3	12.2	14.9	12.3
r	0.03	0.7	0.6	0.6	-0.01	0.46	0.7	0.5	0.3	0.5	0.17	0.1	0.4	0.05	0.2	0.67	0.7	0.7	0.6	0.7
	Success Per cent					Success Per cent					Success Per cent					Success Per cent				
Correct	60.9	52.2	69.6	52.2	39.1	57.1	42.9	34.3	37.1	28.6	58.3	58.3	62.5	50.0	52.9	52.9	47.1	76.5	58.8	70.6
Usable	26.1	34.8	17.4	26.1	26.1	20.0	31.4	28.6	20.0	20.0	33.3	20.8	12.5	20.8	17.7	17.7	29.4	5.9	5.9	5.9
Unusable	13.0	13.0	13.0	21.7	34.8	22.9	25.7	37.1	42.9	51.4	8.3	20.8	25.0	29.2	29.4	29.4	23.5	17.7	35.3	23.5
Summary : Success percentage of correct + usable events of cloud cover forecast was satisfactory during all the days of all the seasons. RMSE was satisfactory during monsoon and monsoon seasons whereas it was high during post monsoon and winter seasons.																				

Table 11.Season wise- Day wise Verification of Minimun Temperature Forecast of Vijayapura district.																				
Tests	Pre - monsoon					Monsoon					Post - Monsoon					Winter				
	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day
RMSE	5.08	1.63	2.55	2.7	6.2	3.71	2.3	1.67	5.1	1.7	2.66	6.56	3.5	4.6	3.8	7.1	12.19	6.4	7.4	6.0
r	0.29	0.71	0.65	0.5	-0.08	0.14	0.72	0.57	0.2	0.6	0.45	0.14	0.5	0.2	0.4	0.64	0.76	0.6	0.5	0.7
	Success Per cent					Success Per cent					Success Per cent					Success Per cent				
Correct	39.1	52.2	47.8	34.8	43.5	68.6	42.9	42.9	37.1	42.9	33.3	58.3	29.2	20.8	37.5	64.7	47.1	52.9	52.9	58.8
Usable	21.7	34.8	13.0	26.1	26.1	25.7	31.4	40.0	45.7	48.6	20.8	20.8	29.2	20.8	12.5	5.9	29.4	23.5	0.0	11.8
Unusable	39.1	13.0	39.1	39.1	30.4	5.7	25.7	17.1	17.1	8.6	45.8	20.8	41.7	58.3	50.0	29.4	23.5	23.5	47.1	29.4
Summary : Success percentage of correct + usable events of cloud cover forecast was satisfactory during all the days of all the seasons. RMSE was satisfactory during monsoon whereas it was high during post monsoon and winter seasons.																				

Table 12.Season wise- Day wise Verification of Morning Relative Humidity Forecast of Vijayapura district.																				
Tests	Pre - monsoon					Monsoon					Post - Monsoon					Winter				
	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day
RMSE	19.8	13.5	14.5	14.2	18.6	16.8	9.81	8.9	22.3	11.2	14.6	20.29	18.7	19.4	20.9	20.1	17.4	70.5	18.0	15.4
r	0.1	0.5	0.5	0.4	0.4	0.23	0.5	0.5	0.08	0.3	0.36	0.08	0.2	0.2	0.2	0.7	0.8	0.8	0.7	0.8
	Success Per cent					Success Per cent					Success Per cent					Success Per cent				
Correct	60.9	43.5	47.8	47.8	47.8	85.7	76.5	74.3	74.3	70.6	50.0	58.3	62.5	54.2	54.2	58.8	58.2	70.5	52.9	58.8
Usable	26.1	43.5	39.1	39.1	39.1	11.4	20.6	22.9	11.4	23.5	33.3	29.2	20.8	29.2	20.8	17.6	17.6	17.6	17.6	23.5
Unusable	13.0	13.0	13.0	13.0	13.0	2.8	2.9	2.8	14.2	5.8	16.6	12.5	16.6	16.6	25	23.5	23.5	11.7	29.4	17.6
Summary : Success percentage of correct + usable events of cloud cover forecast was satisfactory during all the days of all the seasons.																				

Table 13.Season wise- Day wise Verification of Afternoon Relative Humidity Forecast of Vijayapura district.																				
Tests	Pre - monsoon					Monsoon					Post - Monsoon					Winter				
	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day
RMSE	16.8	13.8	10.0	20	19.3	30.2	18.8	23.1	34.7	16.6	18.5	12.7	12.7	14.1	16.0	9.3	10.2	8.8	13.8	52.3
r	0.3	0.1	0.4	0.1	-0.1	0.1	0.4	0.2	-0.1	0.4	0.4	0.47	0.4	0.4	0.5	0.8	0.7	0.8	0.5	0.8
	Success Per cent					Success Per cent					Success Per cent					Success Per cent				
Correct	78.3	65.2	60.9	68.2	65.2	42.9	64.7	55.9	45.7	51.4	66.7	58.3	70.8	70.8	54.2	70.5	70.5	76.4	52.9	82.3
Usable	4.4	13.0	34.8	13.6	8.7	22.9	17.7	17.7	11.4	22.9	12.5	29.2	16.7	12.5	29.2	23.5	23.5	17.6	29.4	11.7
Unusable	17.3	21.7	4.3	18.1	26.09	34.2	17.6	26.4	42.8	25.71	20.83	12.5	12.5	16.6	16.6	5.8	5.8	5.8	17.6	5.8
Summary : Success percentage of correct + usable events of cloud cover forecast was satisfactory during all the days of all the seasons.																				

Table 14.Season wise- Day wise Verification of Cloud cover Forecast of Gadag district.																				
Tests	Pre - monsoon					Monsoon					Post - Monsoon					Winter				
	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day
RMSE	2.6	1.6	1.5	2.1	2.1	0.4	2.2	2.2	3.1	2.1	3.0	1.1	1.3	2.5	3	1.1	0.5	0.5	1.4	2
r	0.3	0.3	0.6	0.5	0.5	0.5	0.5	0.4	0.2	0.2	0.3	-0.0	0.5	0.2	0.5	0.5	0.6	0.4	0.09	0.5
	Success Per cent					Success Per cent					Success Per cent					Success Per cent				
Correct	52.2	25	17.3	69.6	69.5	68.6	0.0	0.0	60	60	45.8	40	50	66.7	66	94.1	100	100	88.2	83
Usable	34.8	45.8	47.8	26.1	26	14.3	5.9	8.6	17	17	25.0	20	29	12.5	13	5.8	0	0	5.8	5.2
Unusable	13.0	29.1	34.7	4.4	4.5	17.1	94	91.4	22.9	22	29.2	40	20	20.8	21	0	0	0	5.8	5.8
Summary : Success percentage of correct + usable events of cloud cover forecast was satisfactory during all the days of all the seasons. RMSE was satisfactory during all seasons.																				

Table 15.Season wise- Day wise Verification of Rainfall Forecast of Gadag district..																				
Tests	Pre - monsoon					Monsoon					Post - Monsoon					Winter				
	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day
RMSE	5.2	4.3	5.3	3.7	32.2	10.4	4.8	14.4	5.3	28.9	1.4	0.6	0.8	0.29	31.7	0	0	0	0	21.4
r	-0.1	0.1	-0.1	-0.02	0.03	0.4	0.12	0.13	0.1	-0.04	-0.07	0	0	0	0.2	0	0	0	0	0
	Success Per cent					Success Per cent					Success Per cent					Success Per cent				
Correct	93.8	86.7	90.9	91.7	0	61.9	50	63.2	47.1	0	100.0	100	100	100	0	100.0	100	100	100	100
Usable	6.3	0	0	8.3	0	14.3	27	21.1	29.4	0	0.0	0	0	0	0	0.0	0	0	0	0
Unusable	0.0	13.3	9.1	0.0	100	23.8	22	15.8	23.5	100	0.0	0	0	0	100	0.0	0	0	0	0
Summary : Success percentage of correct + usable events of cloud cover forecast was satisfactory during all the days of all the seasons. RMSE was satisfactory during all seasons.																				

Table 16.Season wise- Day wise Verification of Wind speed Forecast of Gadag district																				
Tests	Pre - monsoon					Monsoon					Post - Monsoon					Winter				
	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day
RMSE	7.9	8.2	2.1	8.12	24	4.0	4.6	2.8	4.2	23	8.0	7.23	3.4	7.8	12	5.9	4.6	77.7	50.6	10
r	0.3	0.1	-0.03	0.1	0.1	0.4	0.2	0.5	0.5	0.6	4.2	-0.1	0.2	-0.1	-0.1	0.6	0.6	0.9	0.1	0.3
	Success Per cent					Success Per cent					Success Per cent					Success Per cent				
Correct	69.57	58.3	52.1	69.5	0	91.43	94	57.1	88.5	0	62.5	72	66.6	66.6	0	88.24	87.5	77.7	88.2	62.5
Usable	17.39	33.3	30.4	21.7	0	8.57	5.8	40	11.4	0	33.33	24	12.5	29.1	0	0	6.2	16.6	5.8	0
Unusable	13.0	8.3	17.3	8.7	100	0.0	0.0	2.9	0	100	4.2	4.0	20.8	4.2	100	11.76	6.2	5.6	5.8	35.7
Summary : Success percentage of correct + usable events of cloud cover forecast was satisfactory during all the days of all the seasons. RMSE was satisfactory during pre-monsoon and monsoon seasons whereas it was high during post monsoon and winter seasons.																				

Table 17.Season wise- Day wise Verification of Wind direction Forecast of Gadag district.																				
Tests	Pre - monsoon					Monsoon					Post - Monsoon					Winter				
	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day
RMSE	87.3	89.1	88.0	95.4	67.0	51.2	52.6	34.3	50.8	115.2	81.1	90.3	82.4	60.7	53.6	59.4	78.7	55.7	94.3	41.6
r	0.6	0.7	0.78	0.7	0.8	0.7	0.8	0.8	0.8	0.9	0.9	1	0.9	0.8	1.0	0.8	1	0.9	1	1
	Success Per cent					Success Per cent					Success Per cent					Success Per cent				
Correct	0	4.1	4.3	00	52.1	2.8	2.9	0	0	11.4	0	8	8.3	58.8	36	58.8	68	61.1	4.1	87.5
Usable	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unusable	100	95.8	95	100	47.8	97	97	100	100	88.9	100	92	91.7	41	64.0	41.2	31.2	38.9	95	12.5
Summary : Success percentage of correct + usable events of cloud cover forecast was satis0factory during winter seasons. RMSE was was high during all seasons.																				

Table 18.Season wise- Day wise Verification of Maximun Temperature Forecast of Gadag district.																				
Tests	Pre - monsoon					Monsoon					Post - Monsoon					Winter				
	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day
RMSE	7.8	1.5	2.09	1.6	16.2	5.2	2.1	2.5	7.5	9.8	6.4	6.3	6.4	9.0	14.5	8.6	8.8	8.0	88.2	10.6
r	0.02	0.4	0.7	0.2	-0.26	0.4	0.5	0.5	0.2	0.18	0.2	0.7	0.2	0.2	0.3	0.8	0.8	0.8	0.8	0.8
	Success Per cent					Success Per cent					Success Per cent					Success Per cent				
Correct	78.3	62.5	82.6	69.6	0	68.6	44.1	34.3	28.6	0	83.3	72	58.3	58.3	0	88.2	87.5	94.4	88.2	62.5
Usable	13.0	20.8	8.7	17.4	0	22.9	32.4	22.9	25.7	0	8.3	16	33.3	25.0	0	5.9	6.3	0.0	0.0	0
Unusable	8.7	16.7	8.7	13.0	100	8.6	23.5	42.9	45.7	100	8.3	12	8.3	16.7	100	5.9	6.3	5.6	11.8	37.5
Summary : Success percentage of correct + usable events of cloud cover forecast was satisfactory during all the days of all the seasons. RMSE was satisfactory during all seasons.																				

Table 19.Season wise- Day wise Verification of Minimun Temperature Forecast of Gadag district.																				
Tests	Pre - monsoon					Monsoon					Post - Monsoon					Winter				
	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day
RMSE	5.1	2.0	1.6	2.13	17.4	5.1	1.2	1.4	6.3	15.1	3.31	3.6	3.9	5.4	14.6	4.5	4.4	4.3	4.7	9.2
r	0.07	0.5	0.6	0.4	0.1	0.22	0.4	0.5	0.2	0	0.5	0.4	0.3	0.1	0.3	0.8	0.8	0.8	0.8	0.7
	Success Per cent					Success Per cent					Success Per cent					Success Per cent				
Correct	60.8	66.6	65.2	69.5	0	77.1	73.5	65.7	51.4	0	41.7	52	51.2	54.2	4	82.4	87.5	83.3	70.6	62.5
Usable	13.0	16.6	21.7	13.0	0	17.1	17.7	22.9	40.0	0	33.3	24	20.8	16.7	4	5.9	0	11.1	5.9	6.3
Unusable	26.0	16.6	13.0	17.3	100	5.7	8.8	11.4	8.6	100	25.0	24	25.0	29.2	92	11.8	12.5	5.6	23.5	31.3
Summary : Success percentage of correct + usable events of cloud cover forecast was satisfactory during all the days of all the seasons. RMSE was satisfactory during all seasons.																				

Table 20.Season wise- Day wise Verification of Morning Relative Humidity Forecast of Gadag district.																				
Tests	Pre - monsoon					Monsoon					Post - Monsoon					Winter				
	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day
RMSE	20.7	8.4	13.2	11.6	12.5	13.9	6.4	6.6	20.5	20.4	17.6	16.9	17.6	23.8	24.0	15	13.1	17.6	16.4	16.5
r	0.1	0.8	0.6	0.7	0.5	0.5	0.7	0.7	0.3	0.2	0.3	0.3	0.3	0.19	0.2	0.8	0.8	0.7	0.8	0.7
	Success Per cent					Success Per cent					Success Per cent					Success Per cent				
Correct	69.5	75	56.5	56.5	55.2	94.2	91	88.5	88.5	88.4	79.1	84	79.1	75	76	82.3	81	83.3	82.3	82.4
Usable	21.7	25	34.8	39.1	38.2	2.9	8.8	8.6	2.9	2.8	16.7	12	12.5	12.5	11	5.9	6.3	0	11.8	11.5
Unusable	8.7	0	8.7	4.4	4.5	2.9	0	2.9	8.6	8.5	4.2	100	8.3	12.5	12	11.8	12.5	16.7	5.9	5.8
Summary : Success percentage of correct + usable events of cloud cover forecast was satisfactory during all the days of all the seasons. RMSE was high during post all seasons.																				

Table 21.Season wise- Day wise Verification of Afternoon Relative Humidity Forecast of Gadag district.																				
Tests	Pre - monsoon					Monsoon					Post - Monsoon					Winter				
	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day	1st Day	2nd Day	3rd Day	4th Day	5th Day
RMSE	26.0	16.9	22.0	14.1	38.6	26.4	21.1	33	27.4	20.4	14.3	20.0	15.6	17.9	35.7	6.8	8.7	8.1	7.2	17.1
r	-0.1	0.4	0.1	0.5	0.1	0.3	0.3	0.3	0.4	0.7	0.5	0.06	0.3	0.4	0.4	0.8	0.8	0.8	0.8	0.8
	Success Per cent					Success Per cent					Success Per cent					Success Per cent				
Correct	65.2	66.6	56.5	60.8	13.0	60	32.3	40	45.7	31.4	66.6	60	66.6	51.1	0	88.2	87.5	83.3	82.3	62.5
Usable	17.4	12.5	17	21.7	8.7	25.7	47.1	22.9	22.9	28.6	25.0	20	20.8	25.0	8.0	11.8	0	11.1	17.7	12.5
Unusable	17.4	20.8	26	17.4	78.3	14.3	20.6	37.1	31.4	40.	8.3	20	12.5	20.8	92.0	0.0	12.5	5.6	0	25.0
Summary : Success percentage of correct + usable events of cloud cover forecast was satisfactory during all the days of all the seasons. RMSE was satisfactory during post monsoon and winter seasons whereas it was high during pre monsoon and monsoon seasons.																				

VI. FEED BACK FROM FARMERS

6.1 Number of farmers from whom feedback were received.

Feed back was received from 300 farmers.

6.2 How many farmers made use of this bulletin in planning their field operations.

All the farmers made use of this bulletin in planning their field operations depending on crop condition.

6.3 How many farmers received the AAS bulletins in time and the media?

All the selected farmers received the weather forecast and advisories in time.

6.4 How do they rate this information?

Ratings	Percentage
Excellent	40
Very good	35
Good	24
Satisfactory	06

6.5 How many farmers think this is useful information and should continue.

All the farmers were of the opinion that, this is a useful information and should continue. But forecast quality must be improved.

6.6 How many farmers get information regarding coming weather from other Sources and by which media.

Most of the progressive farmers get information regarding coming weather from T.V., Radio and News paper and Agrometeorologist by phone.

6.7 Specific comments made by the farmers

- The accuracy of rainfall forecast has to be improved
- The rainfall forecast for at least one month be provided, which helps to decide the agricultural operations
- The farmers opine that, a seasonal forecast in the beginning of the monsoon season should be provided for individual region
- Weather forecast for dry spells and drought situations should be provided

VII. TECHNIQUES USED IN THE PREPARATION OF GKMS BULLETINS AND R & D DETAILS

7.1 Inventory of techniques used for translation of weather forecasts into agricultural operations if any.

Translation of weather forecasts into agricultural operations to be carried out is done by the panel scientists concerned.

7.2 List of expert systems used in preparation of GKMS bulletins, if any.

Scientists from different disciplines are members of the committee for utilization of weather forecast and preparation of Agro-advisory bulletins.

Scientists involved:

Dr. S.M. Vastrad, Plant Pathologist, College of Agriculture, Vijayapura

Dr. Karabhantanak, Agril. Entomologist, RARS, Vijayapura

DrK. G. Sumesh Agrometeorologist, AICRPAM, Vijayapura

Dr.S.Y.Mukartal Animal Scientist,College of Agriculture, Vijayapur

Dr. Vittal Mangi Horticulturist, College of Agriculture, Vijayapur

Ms. Lavanya P. Technical Officer, GKMS Unit, Vijayapura

7.3 List of crop weather models, Pest/disease forecast models etc. available.

Forecast Models for Sorghum Shoot fly, initiation of Grape Powdery Mildew, Downey Mildew and Anthracnose

7.4 Provide knowledge base developed at the unit, if any through research efforts locally (like climatological tables, crop weather models developed/ validated etc.)

a. Tables of rainfall have been prepared for all Talukas of Vijayapura and Gadag Districts.

b. Daily rainfall probability charts have been prepared for 100 stations of the zone.

c. A schematic showing rainfall Nakshatra periods and recommended crops for sowing has been prepared for all Talukas of Vijayapura district.

d. Agroclimatic atlas has been prepared for Vijayapura and Bagalkot districts.

7.5 Please provide results of any other R & D in Agrometeorology.

The AICRP on Agro-meteorology has started functioning at this station since 1995-96. The research on the following themes has been completed in this project.

a) Crop weather relations in *kharif* pearl millet, *rabi* sorghum and sunflower.

c) Forecast models have been developed for

- Sunflower seed yield based on agrometeorological variables.
- Shootfly pest on rabi sorghum.
- Powdery mildew, downey mildew and anthracnose on grapes.

e) Association of meteorological elements on larval incidence of gram pod borer on chickpea has been studied.

7.6 List of papers prepared/published in Agro-Meteorology particularly showing influence of weather on agriculture and pest and disease etc.

Kannada Popular articles in krishi munnade :02

1. Bharatada mungaru marutagala mele El-Nino Prabhava
2. Jagatika Vaarshika Havamana Varadi -2023
3. Leaflets :01

Weather forcast information giving IMD apps Megadhoot, Mausam, HavamanKrishi, Damini and Sidilu

VIII. DETAILS OF MANPOWER

8.1	**Whether Technical Officer is appointed in the Project.**Yes	
	Name	Ms. Lavanya P.
	Designation	Technical Officer
	Qualification	M.Sc.(Agri)
	Subject of specialization	Agricultural Meteorology
	Scale	Rs. 57000-182400
	Basic pay	Rs. 59,400=00 (For the year 2023-24)

8.2 Name, Designation and subject of specialization of Officers who attended the Agromet training programme of NCMRWF/IMD.

Sl. No	Name and Designation	Subject of Specialization	Agromet training programme of NCMRWF/IMD
1	Dr. Sumesh K.G. Nodal Officer, IAAS Unit, RARS, Vijayapura UAS Dharwad	Agricultural Meteorology	**Participated in 12 days Biennial worskshop and capacity building programme on AICRP on Agrometeorology.**

IX. ECONOMIC IMPACT OF AAS

9.1 Usefulness of advisory bulletins.

The advisories will help the farmers in taking timely and weather-based operations such as sowing, intercultivation, thinning, weeding, irrigation, pruning, plant protection, harvesting and post harvest operations.

The forecast on cloud cover, rainfall, maximum and minimum temperature, Variation in diurnal temperature coupled with relative humidity are very important to

assess the incidence , severity, development, multiplication and spread of various pests (aphids, thrips, mites, leaf eating caterpillars, fruit borers, pod borers) and diseases (powdery mildew, downy mildew, anthracnose, alternaria, fruit spot, botrytis and bacterial leaf spot), in almost all crops, particularly intensively managed horticulture crops such as grapes, pomegranate and citrus in this region.

The advisories given to the farmers based on the prevailing and forthcoming weather, stage of the crop, incidence and stage of the pest or disease, will help the farmers either to take up timely plant protection measures or in reducing the number of sprays they usually go in for, to manage the pest in the absence of weather based advisories.

The samples of advisories issued for Vijayapura, district, both in English and Kannada are given from page number 37 onwards.

X. Evaluation Summary Report (during 2023-24) for AMFU at Vijayapura

Sr.No.	Criteria	Maximum Marks	Marks given by AMFU
1.	No. of times district bulletins generated using Agromet-DSS and uploading in Agrimet website during the year	10	10
2.	No of times block bulletins (for all blocks) generated and using Agromet-DSS uploading in Agrimet website during the year	10	10
3.	Uploading of Agromet observatory data on real time basis in Agrimet website	05	05
4.	Preventive maintenance/upkeep of Agromet observatory & AWS	05	05
5.	Whether advisories are being generated to other sectors like Livestock, Poultry, Fisheries, Horticulture, and Floriculture etc. in addition to the existing cereal and cash crops	05	05
6.	Initiatives undertaken for registration of farmers for receiving the advisories through SMS/Social Media	05	05
7.	Formation of Block wise WhatsApp groups and covering Farmers and Villages (total 18 whats app groups covering 6000 farmers of different talukas of Vijayapura)	05	05
8.	No. of times Farmers' Awareness Programmes conducted during the year, meetings, extension activities / popularization programme on AAS	05	05
9.	Popularization of Meghdoot, Damini and Mausam Apps and Public observation app developed by IMD	05	05
10.	Whether block level advisories disseminated up to panchayat/ village level through extension system of State Department of Agriculture	05	05

11.	Economic survey of Agromet Advisories (also includes uploading of audio/ video clips in Youtube Channel)	05	03
12.	Feedback analysis at weekly interval and End of Season for evaluation of Agromet advisories generated	05	05
13.	Regular soil moisture observation	05	05
14.	Newspaper clippings, pamphlets, books & papers published pertaining to use in GKMS	05	03
15.	Issue regular IBF and submission to respective MC	05	05
16.	Innovative idea/methodologies for objective criteria developed and used for improvement of Agromet Advisories during the period. Validation of Pest & Disease Forewarning model, Preparation of Advisory Inventory, Development of Crop Weather Calendar & Use of remote sensing products and Extended range forecast in the advisories	10	10
17.	Compilation of local relevant research, Normal date of sowing of different crops and area under irrigated and rainfed condition.	05	03
Total		**100**	**95**

XI. Agro Advisory Bulletin Sample

ಕೃಷಿ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಧಾರವಾಡ
ಗ್ರಾಮೀಣ ಕೃಷಿ ಹವಾಮಾನ ಸೇವೆ
ಪ್ರಾದೇಶಿಕ ಕೃಷಿ ಸಂಶೋಧನಾ ಕೇಂದ್ರ, ವಿಜಯಪುರ

ವಿಜಯಪುರ ಜಿಲ್ಲೆಗಾಗಿ ಹವಾಮಾನ ಆಧಾರಿತ ಕೃಷಿ ಸಲಹೆಗಳು ದಿನಾಂಕ : **30-01-2024**

ಕೃಷಿ ಸಂಶೋಧನಾ ಕೇಂದ್ರ, ವಿಜಯಪುರದಲ್ಲಿ, ದಿನಾಂಕ 26/01/2024 ರಿಂದ 30/01/2024 ರ ಅವಧಿಯಲ್ಲಿಯ ದಾಖಲದ ಹವಾಮಾನ ಮಾಹಿತಿ

ಹವಾಮಾನದ ಅಂಶಗಳು	ಮಳೆಯ ಪ್ರಮಾಣ (ಮಿ.ಮೀ.)	ಹಗಲಿನ ಉಷ್ಣಾಂಶ (^{0}ಸೆ.)	ರಾತ್ರಿಯ ಉಷ್ಣಾಂಶ (^{0}ಸೆ.)	ಬೆಳಗಿನ ಆರ್ದ್ರತೆಯ ಪ್ರಮಾಣ (%)	ಮಧ್ಯಾನ್ಹದ ಆರ್ದ್ರತೆಯ ಪ್ರಮಾಣ (%)	ಗಾಳಿಯ ವೇಗ (ಕಿ.ಮೀ./ಘಂ.)
26-01-2024	0.0	30.0	13.2	76	34	3.8
27-01-2024	0.0	31.5	14.8	77	37	3.2
28-01-2024	0.0	30.6	14.5	77	33	3.8
29-02-2024	0.0	30.2	11.2	73	28	3.5
30-02-2024	0.0	31.4	13.4	72	34	3.6

ತಿಂಗಳವಾರು ಮಳೆಯ ಹಂಚಿಕೆ

ತಿಂಗಳು	ಸರಾಸರಿ ಮಳೆ ಮಿ.ಮೀ 1985–2010	2019		2020		2021		2022		2023	
		ಮಳೆ (ಮಿ.ಮೀ)	ಮಳೆ ದಿನಗಳು	ಮಳೆ (ಮಿ.ಮೀ)	ಮಳೆ ದಿನಗಳು	ಮಳೆ (ಮಿ.ಮೀ)	ಮಳೆ ದಿನಗಳು	ಮಳೆ (ಮಿ.ಮೀ)	ಮಳೆ ದಿನಗಳು	ಮಳೆ (ಮಿ.ಮೀ)	ಮಳೆ ದಿನಗಳು
ಜನೇವರಿ	4.1	0.0	0	0.0	0	10.2	1	0.0	0	0.0	0
ಫೆಬ್ರುವರಿ	2.7	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
ಮಾರ್ಚ	5.6	0.0	0	6.9	2	0.0	0	0.4	0	1.8	0
ಏಪ್ರೀಲ್	20.9	46.2	2	19.1	3	35.9	4	71.2	8	30.8	2
ಮೇ	39.6	34.6	3	112.9	4	65.7	7	121.6	4	30.8	4
ಜೂನ್	85.4	92.6	5	93.4	7	60.2	8	60.0	6	18.6	3
ಜುಲೈ	72.5	44.1	4	187.6	12	146.4	8	114.0	10	92.0	9
ಆಗಷ್ಟ	78.0	38.8	6	58.4	5	67.7	6	171.7	8	41.8	4
ಸೆಪ್ಟೆಂಬರ್	151.6	131.1	7	267.3	13	161.7	12	122.0	11	98.0	7
ಅಕ್ಟೋಬರ್	97.3	165.9	10	112.6	6	33.2	2	130.9	9	2.6	1
ನವೆಂಬರ್	29.5	16.5	2	4.0	0	24.4	2	0.0	0	10.6	0
ಡಿಸೆಂಬರ್	7.2	7.0	1	0.0	0	27.4	2	1.4	0	0.0	0
ಒಟ್ಟು	594.4	576.8	40	862.2	52	632.8	52	793.2	56	327	30

ವಿಜಯಪುರ ಜಿಲ್ಲೆಗಾಗಿ ಮುಂದಿನ ಐದು ದಿನಗಳಿಗೆ, ಭಾರತ ಹವಾಮಾನ ವಿಭಾಗವು ನೀಡಿದ ಮಧ್ಯಮಾವಧಿ ಹವಾಮಾನ ಮುನ್ಸೂಚನೆ

ಹವಾಮಾನದ ಅಂಶಗಳು	ಜನವರಿ 31	ಫೆಬ್ರವರಿ 01	ಫೆಬ್ರವರಿ 02	ಫೆಬ್ರವರಿ 03	ಫೆಬ್ರವರಿ 04
ಮಳೆಯ ಪ್ರಮಾಣ (ಮಿ.ಮೀ.)	0	0	0	0	0
ಹಗಲಿನ ಉಷ್ಣಾಂಶ (^{0}ಸೆ.)	31	32	32	32	32
ರಾತ್ರಿಯ ಉಷ್ಣಾಂಶ (^{0}ಸೆ.)	13	14	15	15	15
ಬೆಳಗಿನ ಆರ್ದ್ರತೆಯ ಪ್ರಮಾಣ (%)	57	57	57	56	56
ಮಧ್ಯಾನ್ಹದ ಆರ್ದ್ರತೆಯ ಪ್ರಮಾಣ (%)	31	31	31	29	29
ಗಾಳಿಯ ವೇಗ (ಕಿ.ಮೀ./ಘಂ.)	9	10	11	10	10
ಗಾಳಿಯ ದಿಕ್ಕು (ಡಿಗ್ರಿ)	158	270	261	54	135
ಮೋಡದ ಪ್ರಮಾಣ (ಆಕ್ಟಾ)	1	1	2	1	1

ಮಧ್ಯಮ ಅವದಿ ಹವಾಮಾನ ಮುನ್ಸೂಚನೆಯ : ಭಾರತ ಹವಾಮಾನ ವಿಭಾಗವು ನೀಡಿದ ಮುನ್ಸೂಚನೆಯಂತೆ ಮುಂದಿನ 5 ದಿನಗಳಲ್ಲಿ ಸಾಮಾನ್ಯವಾಗಿ ಶುಭ್ರ ಆಕಾಶದ ವಾತಾವರಣ ಇರಲಿದೆ ಹಾಗೂ ಯಾವುದೇ ಮಳೆ ಆಗುವ ಸಾಧ್ಯತೆ ಇಲ್ಲಾ, ಹಗಲಿನ ಉಷ್ಣಾಂಶ ಸರಾಸರಿ 31.0-32.0 ಡಿಗ್ರಿ ಸೆ. ರಾತ್ರಿಯ ಉಷ್ಣಾಂಶ ಸರಾಸರಿ 13.0-15.0 ಡಿಗ್ರಿ ಸೆ. ವರೆಗೆ ಬೆಳಗಿನ ಆದ್ರತೆ ಪ್ರತಿಶತ 56-57 ಮಧ್ಯಾನ್ಹದ ಆದ್ರತೆ ಪ್ರತಿಶತ 29-31ರ ವರೆಗೆ ಇರುವ ಮುನ್ಸೂಚನೆ ಇದೆ.

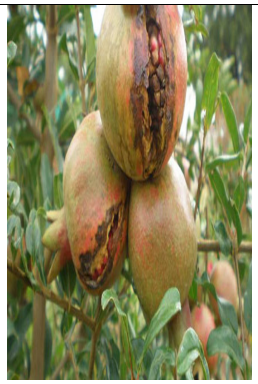
ಹವಾಮಾನ ಆಧಾರಿತ ಕೃಷಿ ಸಲಹೆಗಳು

- ಹಿಂಗಾರಿ ಜೋಳದ ಬೆಳೆಯು ಕಾಳು ಕಟ್ಟುವ ಹಂತದಲ್ಲಿದ್ದು. ಈ ಹಂತವು ಸಂವೇದನಾ ಶೀಲವಾಗಿದ್ದು. ಈ ಹಂತದಲ್ಲಿ ನೀರಿನ ಕೊರತೆ ಹೆಚ್ಚಾಗಿ ಕಂಡುವಬರುವದರಿಂದ ಸಾಧ್ಯವಿದ್ದಲ್ಲಿ ಬೆಳೆಗೆ ನೀರು ಹಾಯಿಸಬೇಕು.
- **ಬೆಳೆ ಕಟಾವು :** ಭಾರತ ಹವಾಮಾನ ವಿಭಾಗವು ನೀಡಿದ ಮುನ್ಸೂಚನೆಯಂತೆ, ಮುಂದಿನ ಐದು ದಿನಗಳಂದು ಭಾಗಶಃ ಮೋಡ ಇದ್ದು ಒಣ ಹವೆ ಮುಂದುವರೆಯುವುದು. ತೊಗರಿ' ಕಡಲೆ ಬೆಳೆಗಳ ಕಟಾವು ಮಾಡಿ, ರಾಸಿ ಮಾಡಿ, ಕಾಳನ್ನು ಬಿಸಿಲಿನಲ್ಲಿ ಚೆನ್ನಾಗಿ ಒಣಗಿಸಿ ಸಂಗ್ರಹಿಸಿ ಇಡಬೇಕು. ಮೆಣಸಿನಕಾಯಿ ಕಟಾವು ಮಾಡಿ, ಬಿಸಿಲಿನಲ್ಲಿ ಚೆನ್ನಾಗಿ ಒಣಗಿಸಿ ಸಂಗ್ರಹಿಸಿ ಇಡಬೇಕು. ಬಿಸಿಲು ಬಿದ್ದ ನಂತರ ಹತ್ತಿಯನ್ನು ಬಿಡಿಸಬೇಕು. ಬಿಡಿಸಿದ ಹತ್ತಿಯನ್ನು ಬಿಸಿಲಿನಲ್ಲಿ ಒಣಗಿಸಿ ಸಂಗ್ರಹಿಸಿ ಇಡಬೇಕು
- **ರೈತರಿಗೆ ವಿಶೇಷ ಸೂಚನೆ:** ನಿಮ್ಮ ಆಂಡ್ರೈಡ ಮೋಬೈಲ ಫೋನಿನಲ್ಲಿ, ಗೋಗಲ್ ಪ್ಲೇ ಸ್ಟೋರಿನಿಂದ Mausam (ಮೌಸಮ್). meghdoot (ಮೇಘದೂತ್), Damini (ದಾಮಿನಿ) ಹಾಗೂ Havaamaana Krishi (ಹವಾಮಾನ ಕೃಷಿ). "ಆಪ್" (ಬಳಕ) ಗಳನ್ನು ಡೌನ್ ಲೋಡ (ಇಳಿಸಿಕೊಂಡು) ಮಾಡಿಕೊಂಡು, ಅವುಗಳಿಂದ ನಿಮ್ಮ ಆಯ್ಕೆಯ ಸ್ಥಳದ ಅಥವಾ ಜಿಲ್ಲೆಯ ದಿನದ ಹವಾಮಾನ, ಮುಂದಿನ ಐದರಿಂದ ಏಳು ದಿನಗಳ ಹವಾಮಾನ ಮುನ್ಸೂಚನೆ, ಗುಡುಗು ಮಿಂಚಿನ ಮಾಹಿತಿ ಹಾಗೂ ಹವಾಮಾನ ಆಧಾರಿತ ಕೃಷಿ ಸಲಹೆಗಳನ್ನು ತಿಳಿದುಕೊಳ್ಳಬಹುದು. ಈ ಮಾಹಿತಿಯನ್ನು ಉಪಯೋಗಿಸಿಕೊಂಡು ದೈನಂದಿನ ಹಾಗೂ ಮುಂದಿನ ದಿನಗಳಲ್ಲಿ ಕೈಕೊಳ್ಳಬೇಕಾದ ಕೃಷಿ ಚಟುವಟಿಕೆಗಳನ್ನು ನಿರ್ಧರಿಸಬಹುದು

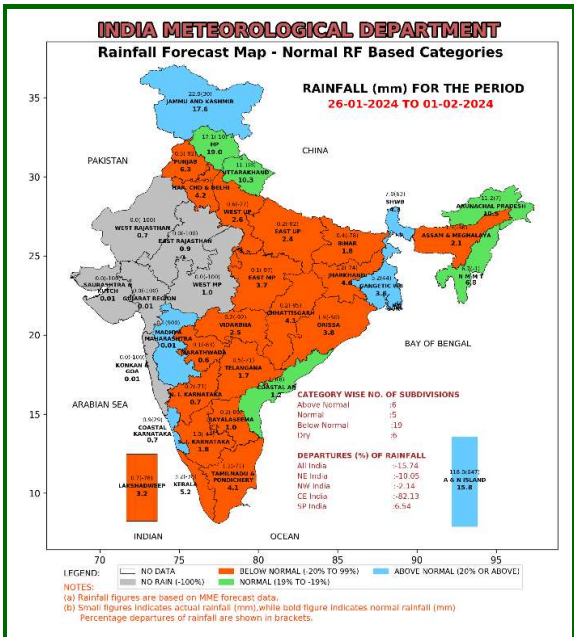
ಹಾಗೂ ವೈಪರಿತ್ಯ ಹವಾಮಾನದಲ್ಲಿ ಆಗಬಹುದಾದ, ಬೆಳೆ ಮತ್ತು ಪರಿಕರಗಳ ಹಾನಿಯನ್ನು ಕಡಿಮೆ ಮಾಡಬಹುದು.

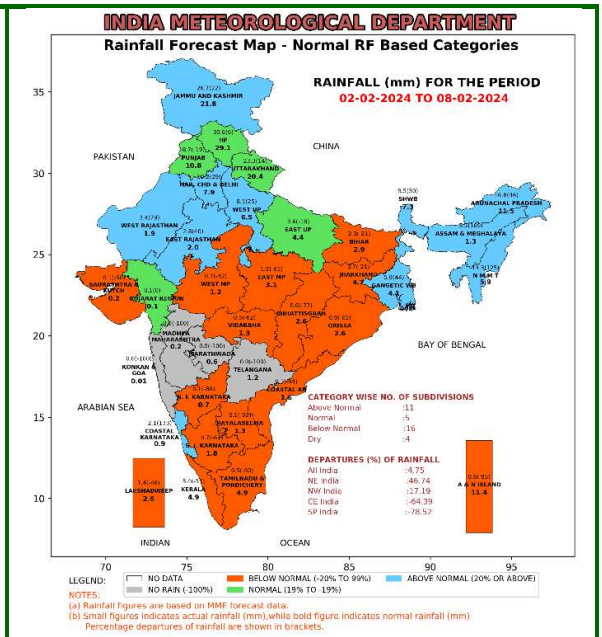
ಕೃಷಿ ಸಲಹೆಗಳು

ಬೆಳೆ	ಬೆಳೆ ಹಂತ	ಕೀಟ/ರೋಗ	ನಿರ್ವಹಣೆ
ಹಿಂಗಾರಿ ಜೋಳ	ಕಾಳು ಕಟ್ಟುವ ಹಂತ		• ಹಿಂಗಾರಿ ಜೋಳದ ಬೆಳೆಯು ಕಾಳು ಕಟ್ಟುವ ಹಂತದಲ್ಲಿದ್ದು. ಈ ಹಂತವು ಸಂವೇದನಾ ಶೀಲವಾಗಿದ್ದು. ಈ ಹಂತದಲ್ಲಿ ನೀರಿನ ಕೊರತೆ ಹೆಚ್ಚಾಗಿ ಕಂಡುವಬರುವದರಿಂದ ಸಾಧ್ಯವಿದ್ದಲ್ಲಿ ಬೆಳೆಗೆ ನೀರು ಹಾಯಿಸಬೇಕು.
ಕುಸುಬೆ	ಹೂವಾಡುವ ಹಂತದಿಂದ ತೊಂಡಿಲು ಬೆಳೆವಣಿಗೆ ಹಂತ		• ಕುಸುಬೆಯಲ್ಲಿ ತೊಂಡಿಲು ಕೊರಕ ಕೀಟದ ನಿಯಂತ್ರಣಕ್ಕಾಗಿ ಒಂದು ಮಿ.ಲೀ. ಮೋನೋಕ್ರೊಟೋಫಾಸ್ 36 ಎಸ್.ಎಲ್ ಅಥವಾ 2 ಮಿ.ಲೀ. ಕ್ವಿನಾಲ್ ಫಾಸ್ 25 ಇ.ಸಿ. ಪ್ರತಿ ಲೀಟರ್ ನೀರಿನಲ್ಲಿ ಬೆರೆಸಿ ಸಿಂಪಡಿಸಬೇಕು.
ದ್ರಾಕ್ಷಿ	ಹೂವಾಡುವ ಹಂತದಿಂತ ಹಣ್ಣು ಬೆಳೆವಣಿಗೆ		• ಹಿಟ್ಟು ತಿಗಣೆ ಕೀಟದ ನಿಯಂತ್ರಣಕ್ಕಾಗಿ, ಪ್ರತಿ ಲೀಟರ ನೀರಿನಲ್ಲಿ 2 ಮಿ.ಲೀ. ಡಿಡಿವಿಪಿ + 5 ಮಿ.ಲೀ. ಮೀನಿನ ಎಣ್ಣೆ ಬೆರೆಸಿ ಸಂಪಡಿಸಬೇಕು.
ಲಿಂಬೆ	ಹೂವಾಡುವ ಹಂತ		• ಲಿಂಬೆಯಲ್ಲಿ ಸುರಳಿಪೂಚಿ ಕೀಟದ ನಿಯಂತ್ರಣಕ್ಕಾಗಿ ಪ್ರತಿ ಲೀಟರ ನೀರಿನಲ್ಲಿ 0.3 ಮಿ.ಲೀ. ಇಂಡಾಕ್ಸಿಕಾರ್ಬ ಅಥವಾ 0.2 ಗ್ರಾಂ ಇಮಾಮೆಕ್ಟಿನ ಬೆಂಜೊಯೆಟ್ ಬೆರೆಸಿ ಸಿಂಪಡಿಸಬೇಕು. • ಮೈಟ ನುಸಿಯ ನಿಯಂತ್ರಣಕ್ಕಾಗಿ. ಪ್ರತಿ ಲೀಟರ ನೀರಿನಲ್ಲಿ 0.75 ಮಿ.ಲೀ. ಸ್ಪೈರೊಮೆಸಿಫೆನ್ ಬೆರೆಸಿ ಸಿಂಪಡಿಸಬೇಕು

			• ಲಿಂಬೆಯಲ್ಲಿ ಅಂಟುರೋಗ ಹಾಗೂ ಸೊರಗು ರೋಗದ ನಿಯಂತ್ರಣಕ್ಕಾಗಿ ಪ್ರತಿ ಲೀರಿನಲ್ಲಿ 4 ಗ್ರಾಂ ರಿಡೋಮೊಲ್ ಗೋಲ್ಡ + 3 ಗ್ರಾಂ ಬ್ಲೈಟಾಕ್ಸ + 50 ಗ್ರಾಂ. ಹುರಮಂಜ ಬೆರೆಸಿ ತಯಾರಿದ ಸರಿಯನ್ನು ಅಂಟುಸೋರುವ ಜಾಗದಲ್ಲಿ ಲೇಪಿಸಬೇಕು ಹಾಗೂ ಪ್ರತಿ ಲೀಟರ ನೀರಿನಲ್ಲಿ 5 ಮಿ.ಲೀ. ಹೆಕ್ಸಾಕೋನೋಜೋಲ ಬೆರೆಸಿದ ದ್ರಾವಣವನ್ನು ಪ್ರತಿ ಗಿಡದ ಬುಡಕ್ಕೆ 2-3 ಲೀಟರಿನಷ್ಟು ಸುರಿಯಬೇಕು.
	ಹಣ್ಣು ಬೆಳೆವಣಿಗೆ ಹಂತ		• ಕಜ್ಜಿ ರೋಗದ ನಿಯಂತ್ರಣಕ್ಕಾಗಿ, ರೋಗ ತಗುಲಿದ ಭಾಗಗಳನ್ನು ಕತ್ತರಿಸಿದ ಮೇಲೆ ಪ್ರತಿ ಲೀಟರ ನೀರಿಗೆ 3 ಗ್ರಾಂ ತಾಮ್ರದ ಆಕ್ಸಿಕ್ಲೋರೈಡ ಅಥವಾ ಶೇ. 1 ರ ಬೋರಡೋದ್ರಾವಣ ಅಥವಾ 300 ಪಿ.ಪಿ.ಎಮ್ ಸ್ಟ್ರೆಪ್ಟೊಮೈಸಿನ್ (3 ಗ್ರಾಂ ಪ್ರತಿ 10 ಲೀ. ನೀರಿಗೆ) ಬೆರೆಸಿ ಸಿಂಪಡಿಸಬೇಕು.
ದಾಳಿಂಬೆ	ಹಣ್ಣು ಬೆಳೆವಣಿಗೆ ಹಂತ		• ದಾಳಿಂಬೆಯಲ್ಲಿ ದುಂಡಾಣು ಅಂಗಮಾರಿ ಕಜ್ಜಿರೋಗದ ಹತೋಟಿಗಾಗಿ, ಪ್ರತಿ ಲೀಟರ ನೀರಿನಲ್ಲಿ 0.5 ಗ್ರಾಂ ಸ್ಟ್ರೆಪ್ಟೋಸೈಕ್ಲಿನ್ + 2 ಗ್ರಾಂ ತಾಮ್ರದ ಆಕ್ಸಿಕ್ಲೋರೈಡ ಬೆರೆಸಿ ಸಿಂಪಡಿಸಬೇಕು. ಮರುದಿವಸ, ಪ್ರತಿ ಲೀಟರ ಲೀರಿನಲ್ಲಿ 1 ಗ್ರಾಂ.ಝಿಂಕ ಸಲ್ಫೇಟ + 1 ಗ್ರಾಂ ಮ್ಯಗ್ನೀಶಿಯಂ ಸಲ್ಫೇಟ + 1 ಗ್ರಾಂ ಬೋರ್ಯಾಕ್ಸ + 1 ಗ್ರಾಂ ಸುಣ್ಣದ ಪುಡಿ ಬೆರೆಸಿ

ವಿಸ್ತೃತ ಹವಾಮಾನ ಮೂನ್ಸೂಚನೆ
ಮುಂದಿನ ಎರಡು ವಾರಗಳ ಮಳೆಯ ನಕ್ಷೆಗಳು (ಜನೆವರಿ 24 ರಂದು ಪಡೆಯಲಾಗಿದೆ)
(ಜನೆವರಿ 26, 2024 ರಿಂದ ಫೆಬ್ರುವರಿ 08, 2024)





ಮುಂದಿನ ಎರಡು ವಾರಗಳಲ್ಲಿ (26-01-2024 ರಿಂದ 01-02-2024) ಮತ್ತು (02-02-2024 ರಿಂದ 08-02-2024)ರ ವರೆಗೆ ಉತ್ತರ ಕರ್ನಾಟಕದ ಜಿಲ್ಲೆಗಳು ಯಾವುದೇ ಮಳೆ ಪಡೆಯುವ ಸಾಧ್ಯತೆಗಳಿಲ್ಲಾ.

ವಿಶೇಷ ಸಲಹೆಗಳು

ಹವಾಮಾನ ಆಧಾರಿತ ಕೃಷಿ ಸಲಹೆಗಳಿಗಾಗಿ ಮೆಘದೂತ್ ಮೊಬೈಲ್ ಅಪ್ಲಿಕೇಶನ್ ಪ್ಲೇಸ್ಟೊರ್ನಿಂದ ಡೌನ್ಲೋಡ ಮಾಡಿಕೊಳ್ಳಬಹುದು.
https://play.google.com/store/apps/details?id=com.aas.meghdoot
ಸಿಡಿಲು ಹಾಗೂ ಗುಡುಗು ಎಚ್ಚರಿಕೆ ಮಾಹಿತಿಗಾಗಿ ದಾಮಿನಿ ಮೊಬೈಲ್ ಅಪ್ಲಿಕೇಶನ್ ಪ್ಲೇಸ್ಟೊರ್ನಿಂದ ಡೌನ್ಲೋಡ ಮಾಡಿಕೊಳ್ಳಬಹುದು.
https://play.google.com/store/apps/details?id=com.lightening.live.damini
ನಿಖರ ಸ್ಥಳದ ಹವಾಮಾನ ಮುನ್ಸೂಚನೆಗಾಗಿ ಮೌಸಮ್ ಅಪ್ಲಿಕೇಶನ್ ಪ್ಲೇಸ್ಟೊರ್ನಿಂದ ಡೌನ್ಲೋಡ ಮಾಡಿಕೊಳ್ಳಬಹುದು.
https://play.google.com/store/apps/details?id=com.imd.masuam

ಕು. ಲಾವಣ್ಯ ಪಿ. — **ತಾಂತ್ರಿಕ ಅಧಿಕಾರಿಗಳು**

ಡಾ. ಕೆ. ಜಿ. ಸುಮೇಶ — **ಸಂಪರ್ಕ ಅಧಿಕಾರಿಗಳು**

ಗ್ರಾಮೀಣ ಕೃಷಿ ಹವಾಮಾನ ಸಲಹಾ ಸೇವೆ

ಪ್ರಾದೇಶಿಕ ಕೃಷಿ ಸಂಶೋಧನಾ ಕೇಂದ್ರ, ವಿಜಯಪುರ

UNIVERSITY OF AGRICULTURAL SCIENCES, DHARWAD
REGIONAL AGRICULTURAL RESEARCH STATION, VIJAYAPURA
GRAMIN KRISHI MAUSAM SEWA (GKMS)

Agromet Advisory Services Bulletin for Vijayapura district

Weather based Agro Advisories for Vijayapura District Date : 30-01-2024

Weather during the previous week (26/01/2024 to 30/01/2024) as recorded at Regional Agricultural Research Station, Vijayapura

Parameters /Date	Rainfall (mm)	Tmax (°C)	Tmin (°C)	RHI (%)	RHII (%)	Wind speed (kmph)
26-01-2024	0.0	30.0	13.2	76	34	3.8
27-01-2024	0.0	31.5	14.8	77	37	3.2
28-01-2024	0.0	30.6	14.5	77	33	3.8
29-01-2024	0.0	30.2	11.2	73	28	3.5
30-01-2024	0.0	31.4	13.4	72	34	3.6

*(RF-rainfall, Tmax- Maximum temeperature, Tmin-Minimum temeperature, RHI-Morning relative humidity, RHII-Afternoon relative humidity)

Month wise rainfall distribution (mm)

Month	Normal rainfall (mm)	2019		2020		2021		2022		2023	
		Rainfall (mm)	Rainy days	Rainfall (mm)	Rainy days	Rainfall (mm)	Rainy days	Rainfall (mm)	Rainy days	Rainfall (mm)	Rainy days
Jan	4.1	0.0	0	0.0	0	10.2	1	0.0	0	0.0	0
Feb	2.7	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Mar	5.6	0.0	0	6.9	2	0.0	0	0.4	0	1.8	0
Apr	20.9	46.2	2	19.1	3	35.9	4	71.2	8	30.8	2
May	39.6	34.6	3	112.9	4	65.7	7	121.6	4	30.8	4
Jun	85.4	92.6	5	93.4	7	60.2	8	60.0	6	18.6	3
Jul	72.5	44.1	4	187.6	12	146.4	8	114.0	10	92.0	9
Aug	78.0	38.8	6	58.4	5	67.7	6	171.7	8	41.8	4
Sept	151.6	131.1	7	267.3	13	161.7	12	122.0	11	98.0	7
Oct	97.3	165.9	10	112.6	6	33.2	2	130.9	9	2.6	1
Nov	29.5	16.5	2	4.0	0	24.4	2	0.0	0	10.6	0
Dec	7.2	7.0	1	0.0	0	27.4	2	1.4	0	0.0	0
Total	594.4	576.8	40	862.2	52	632.8	52	793.2	56	327	30

Special advisiories

Download Meghdoot Mobile application for weather based farm management

https://play.google.com/store/apps/details?id=com.aas.meghdoot

Download Damini mobile app for lightning strike alert

https://play.google.com/store/apps/details?id=com.lightening.live.damini

Download Mausam Mobile application for location specific weather forecast

https://play.google.com/store/apps/details?id=com.imd.masuam

Medium range weather Forecast issued by the India Meteorological Department for

Vijayapura District for the coming five days

Parameters /Date	January 31	February 01	February 02	February 03	February 04
Rainfall (mm)	0	0	0	0	0
Maximum Temperature (^{o}C)	31	32	32	32	32
Minimum Temperature (^{o}C)	13	14	15	15	15
Morning Relative Humidity (%)	57	57	57	56	56
Afternoon Relative Humidity (%)	31	31	31	29	29
Wind speed (kmph)	9	10	11	10	10
Wind direction (degree)	158	270	261	54	135
Cloud cover (Oktas)	1	1	2	1	1

Summary of the Medium Range Forecast : As per the forecast given by the India Meteorological Department Clear sky condition and dry weather condition prevailing during next five days. The Maximum temperature will be ranging between 31.0-32.0 ^{o}C and Minimum temperature will be ranging between 13.0-15.0 ^{o}C, Relative humidity in the morning hours will ranging between 56-57 per cent and that in the afternoon will be ranging between 29-31 per cent.

Weather Based advisories

- Sorghum crop is in grain filling stage. The crop is sensitive to the moisture and nutritional stress, So if possible give irrigation.
- **Harvesting :** As per the forecast given by the India Meteorological Department, partly cloudy condition and dry weather is expected during the next five days. Picking of cotton may be taken up some time after sunrise and the cotton should be sundried before storing. Harvesting of Pigeonpea and chickpea may be taken up. Harvesting of chilli may be taken up and the produce should be sundried before bagging.
- **Special request to farmers :** Download, Mausam, Meghdoot, Damini and Havaamaana Krishi apps in your Android mobiles from Google play store and get the information on days weathet, weather forecast for next 5 to 7 days, thunderstorms and lightning activity and also weathe based agro-advisories for your selected place or selected district. This information can be used in carrying out your day to day and future agricultural activisties. This will help to save the crop and input losses due to unfavourable weather.

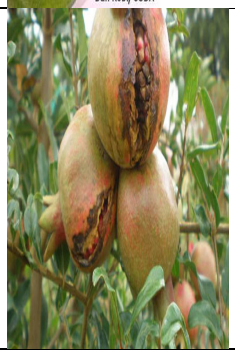
Livestock Management:

- Livestock animals should be vaccinated for Hemorrhage Septecemia (HS), Black quarter (BQ) and foot and mouth disease.
- For milch animals regularly follow schedule of 1 kg feed + 50 g mineral mixture per 2 litres of milk yield.
- Vaccinate sheep and goat against Enterotoxaemia disease.(ET vaccine)
- Vaccinate sheep/goat for blue tongue and Haemorrrhazgic septicemia disease.

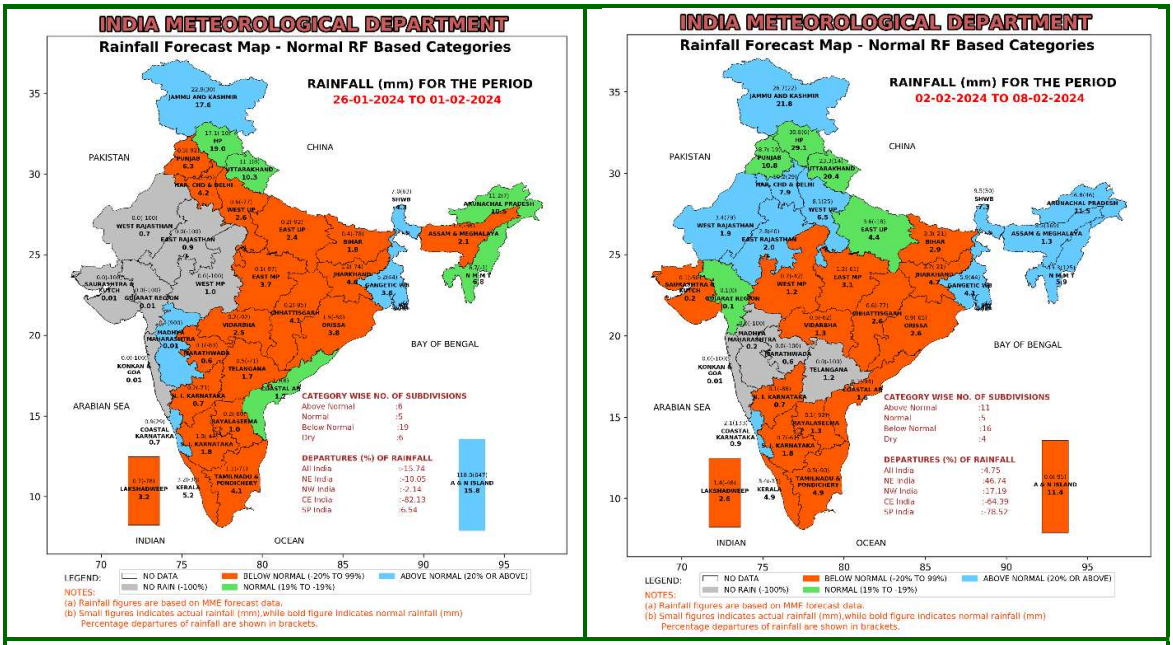
- **Do not allow sheep and goat to graze on young misty grass in early morning hours. This may lead to enterotoxaemia (ET) in unprotected animals.**
- **Vaccinate chickens for every six months to avoid incidence of Stork disease.**
- **Deworming should be done to poultry birds by using Albendazole.**

FIELD CROPS:

Crop	Crop stage	Probable pest/disease/deficiency	Management
Rabi Sorghum	grain filling stage		• Sorghum crop is in grain filling stage. The crop is sensitive to the moisture and nutritional stress, So if possible give irrigation.
Chickpea	pod development stage to physiological maturity		• To manage pod borer in chickpea, take up spraying of 2 gram Imamectin benzoate dissolved in one liter of water.
Safflower	Flowering to Capsule development		• To manage, capsule borer in safflower, take up spraying of 1 ml Monocrotophos 36 SL or 2 ml Quinalphos d25 EC dissolved in one liter of water
Grapes	Vegetative to flowering		• To manage Mealy bug, take up spraying of 2 ml DDVP + 5 ml Fish oil rosin soap, dissolved in one liter of water. • To manage stem borer, inject 8 per cent DDVP into the stem of the infected vine. • To manage sucking pests, take up spraying of 0.25 ml Imidacloprid or 0.2 gram Thiamethoxam or 0.25 gram Acetamiprid dissolved in one liter of water.

Lime	Vegetative stage		• To manage leaf minor take up spraying of spraying of 0.3 ml Indoxacarb or 0.2 gram Eimamectin benzoate dissolved in one loiter of water.
			• To manage Gummosis and wilt diseases, paste the gum prepared by mixing 4 gram Ridomil Gold + 3 gram Blitox + 50 gram Red Oxide in one liter of water and pour 2-3 liters of mixture prepared by dissolving 5 ml Hexaconazole in one liter of water to the base of the plant.
	Fruit development		• To manage B • acterial blight disease, spray the crop with 3 gram Copper Oxy-chloride or 1 per cent Bordo mixture dissolved in one liter of water or 300 ppm Streptomycin (3 gram in 10 liters of water.
Pomogranate	Fruit development		• To manage Bacterial blight disease pomegranate, spray the crop with Streptomycin Sulphate 0.5 g. + Copper oxy-chloride @ 2 g. in one liter water. Followed by spraying of micro nutrients viz., 1 g. Zinc Sulphate + 1 g. Magnessium Sulphate + 1 g. Barax + 1 g. Calcium dissolved in one liter of water.

Extended Range Forecast System
Rainfall forecast maps for the next 2 weeks (IC- 24th January, 2024) (26th January to 08th February, 2024)



- **Week 1 (26.01.2024 to 01.02.2024):** Rainfall is likely to be below normal over North Interior Karnataka region.
- **Week 2 (02.02.2024 to 08.02.2024):** Rainfall is likely to be below normal over North Interior Karnataka region.

Ms. Lavanya P.
Technical Officer

Dr. K. G. Sumesh
Nodal Officer

Gramina Krishi Mausam Seva
RARS, Vijayapura.