Meteorological Data , Realized data

		Max	Min	Max	Min			Wind

Advisory for Boro Paddy:

- ❑ Apply irrigation for seedbed preparation.
- ❑ Remove the dew deposited in the morning hours on seedlings. If the seedbed becomes yellow, apply urea at the rate of 283 gm urea per decimal.
- ❑ Apply 400 gm gypsum per decimal if the seedlings are still not recovered after application of urea.
- ❑ Cover the entire nursery bed in the day time with polythene sheets and remove in the evening to avoid the effect of cool temperatures on germination and growth of nursery. Irrigate the nursery with water in night time and remove water in early morning to speed up nursery growth in cold weather conditions. Keep 2-3 cm water level on seed bed.

23/1/2020	0.0	24.2	9.0	80.0	47.0	3.0	clear sky	North/North-westerly
24/1/2021	0.0	24.0	8.2	82.0	48.0	3.5	clear sky	North/North-westerly

Meteorological Data . Realized data

Advisory for Aman paddy:

- ❑ As rain occurred during last few days and possibility of rainfall during next five days, farmers are advised to postpone application of fertilizers and pesticides.
- ❑ Apply fertilizers / pesticides during calm weather.
- ❑ Arrange for drainage facilities to avoid water stagnation.
- ❑ *Seedbed may be well exposed and high land and less chance of submergence due to water. Arrange for floating seedbed in absence of high land.*
- ❑ *Construct mini pond close to the main field so that water harvesting of rain water can be made and the water may be used during the dry condition*

Aus Paddy: Seedbed to Transplanting

- ❑ Remove weeds by hand after the current spells of rainfall.
- ❑ If the seedlings are ready for transplanting, this is the ideal time for transplanting as rainfall is expected

23/6/2021	10.0	39.3	29.0	82.0	48.0	3.5	Cloudy sky	North/North westerly

Meteorological Data , Realized data

Date	Rainfall(mm)	Max. temp(°C)	Min. temp(°C)	Max. Relative Humidity(%)	Min. Relative Humidity(%)	Wind Speed (km/h)	Cloud Amount (Okta)	Wind Direction
16/6/2020	50.0	38.5	29.4	96.0	53.0	2.0	4	North/North-westerly
19/6/2020	2.0	38.0	29.0	86.0	50.0	1.5	clear sky	westerly
20/6/2020	3.0	38.0	28.5	70.0	45.0	1.8	clear sky	North/North-westerly
21/6/2021	5.0	38.5	28.8	83.0	48.0	2.0	clear sky	North/North-westerly
22/6/2020	8.0	39.0	29.5	80.0	47.0	3.0	clear sky	North/North-westerly
23/6/2021	10.0	39.3	29.0	82.0	48.0	3.5	clear sky	North/North-westerly

Advisory for Aman paddy:

- ❑ Moderate to heavy rain occurred during last few days and possibility of less rainfall during next five days, and sufficient soil moisture is there, farmers are advised to postpone irrigation.
- ❑ Farmers are advised to apply fertilizers under optimum soil moisture conditions.

Meteorological Data , Realized data

Date	Rainfall(mm)	Max. temp(°C)	Min. temp(°C)	Max. Relative Humidity(%)	Min. Relative Humidity(%)	Wind Speed (km/h)	Cloud Amount (Okta)	Wind Direction
21/6/2020	3.0	38.0	28.5	70.0	45.0	1.8	clear sky	North/North-westerly
22/6/2021	5.0	38.5	28.8	83.0	48.0	2.0	clear sky	North/North-westerly
23/6/2020	4.0	39.0	29.5	80.0	47.0	3.0	clear sky	North/North-westerly
24/6/2021	6.0	39.3	29.0	82.0	48.0	3.5	clear sky	North/North-westerly

Advisory for Aman paddy:

- ❑ Apply light irrigation.
- ❑ Apply pesticide to control the pest at the earliest.
- ❑ Farmers are advised to apply fertilizers under optimum soil moisture conditions.

Advisory if irrigation facilities are not available

- ❑ As very less rain occurred during last few days and there is also less possibility of rainfall during next five days, farmers are advised to wait for receipt of rainfall for application of fertilizers.

Short question for practical

*Please make a forecast using this data (min temp: 8.5 ^{0}C)

Forecast: Mild cold wave is sweeping over Rangpur Division

*Please make a forecast using this data (min temp: 10. 0^{0}C)

Forecast: Mild cold wave is sweeping over Rangpur Division

*Please make a forecast using this data (min temp: 7.0 ^{0}C)

Forecast: Moderate cold wave is sweeping over the regions of Panchagarah & Jashore and it may abate

*Please make a forecast using this data (min temp: 5.0 ^{0}C)

Forecast: Severe cold wave is sweeping over the regions of Panchagarah & Jashore and it may abate

*Please make a forecast using this data (min temp: 7.0-9.0 ^{0}C)

Forecast: Mild to moderate cold wave is sweeping over the region of Rajshahi and Rangpur.

*Please make a forecast using this data (max temp: 37.0 ^{0}C)

Forecast: Mild heat wave is sweeping over Rajshahi & Khulna divisions and the regions of Tangail, Rangpur, Dinajpur & Sayedpur and it may continue and spread.

*Please make a forecast using this data (max temp: 37.0-39.0 ^{0}C)

Forecast: Mild to moderate heat wave is sweeping over Rajshahi & Khulna divisions and the regions of Tangail, Rangpur, Dinajpur & Sayedpur and it may continue and spread.

*Please make a forecast using this data (rainfall: 8-10 mm, area: 1-25%, Dist: Rajshahi)

Forecast: Light rain/drizzle is likely to occur at one or two places over Rajshahi division.

*Please make a forecast using this data (rainfall: 8-10 mm, area: 51-75%, Dist: Rajshahi, wind speed: 32 km/h)

Forecast: Light Rain/thunder showers accompanied by temporary gusty/squally wind is likely to occur at many places over Rajshahi division.

*Please make a forecast using this data (rainfall: 8-20 mm, area: 76-100%, Dist: Rajshahi, wind speed: 32 km/h)

Forecast: Light to moderate rain /thunder showers accompanied by temporary gusty/squally wind is likely to occur at most places over Rajshahi division.

*What do you understand “Well Marked Low”

Well Marked Low means when cyclone is formed then wind speed is 17-21 knots (31-40 km/h)

What do you understand “Severe Cyclonic Storm”

Severe Cyclonic Storm means when cyclonic wind speed is 48-63 knots (89-117 km/h)

Calculation PET by Penman Method

We know, PET = KE_o

Where PET = Daily potential evapotranspiration in mm

K = Constant value = 0.6

E_o = Evaporation from open water surface in mm/day

$$E_o = \frac{\Delta Q_n + \gamma E_a}{\Delta + \gamma}$$

Where, Q_n = Net radiation of water in mm

= QA (1-r) (0.18+0.55n/N)-ϭTa^4 (0.55-0.092$\sqrt{ed}$) (0.10+0.90n/N)

Here is given,

QA= 10.7 mm/day, r= 0.25, n=actual sunshine hours=10.9, N= Possible sunshine hours = 11.1, ϭTa^4= 13.4 mm/day, $\sqrt{ed}$= $\sqrt{9.2} = 3.03$, E_a =1.10, ɣ = 0.49 (constant), Δ = 0.80 (constant)

Where, Q_n = Net radiation of water in mm

= QA (1-r) (0.18+0.55n/N)-ϭTa^4 (0.55-0.092$\sqrt{ed}$) (0.10+0.90n/N)

Here, QA= 10.7 mm/day, r= 0.25, n=actual sunshine hours=10.9, N= Possible sunshine hours = 11.1, ϭTa^4= 13.4 mm/day, $\sqrt{ed}$= $\sqrt{9.2}$, E_a =1.10, ɣ = 0.49 (constant), Δ = 0.80 (constant)

Therefore, QA (1-r)(0.18-0.55n/N)= 10.7*(1-0.25)(0.18+0.55*10.9/11.1)=5.77

(0.55-0.092$\sqrt{ed}$) = (0.55-0.092 $\sqrt{9.2}$) = (0.55+0.092x3.03)=0.27

(0.10+0.90n/N) = (0.10+0.90x10.9/11.1)=0.98

Q_n = 5.77*-13.4*0.27*0.98=2.22

E_a = 0.35(ea-ed)(1+0.0098U_2) = 0.35x(11.2-9.2)X(1+0.0098x59.76)=1.10

$$E_o = \frac{\Delta Q_n + \gamma E_a}{\Delta + \gamma}$$

$$E_o = \frac{0.80x2.22 + 0.49 * 1.10}{0.80 + 0.49}$$

$$E_o = \frac{0.80x2.22 + 0.49 * 1.10}{0.80 + 0.49}$$

$$E_o = 1.79$$

PET = kE_o = 0.6*1.79=1.074 mm day^{-1}