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| **Table S1. Weather parameters of locations during crop season (*kharif* 2020)** |
| **Location** | **Months** | **Temperature (**°**C)** | **R.H. (%)** | **Total Rainfall (mm)** | **Rainy days** | **Sunshine (Hrs.)** | **Evaporation (mm)** | **Crop Stage** |
| **Max** | **Min** | **Mean** | **I** | **II** |
| **Almora (E1)**(29°36' N, 79°40'E& 1250 m a msl) | Jun | 32.9 | 16.9 | 24.9 | 77.5 | 48.0 | 53.5 | 7 | 7.6 | 4.6 | Sowing |
| Jul | 29.2 | 19.2 | 24.2 | 91 | 67.7 | 119.3 | 15 | 3.8 | 2.5 | Vegetative |
| Aug | 28.8 | 20.3 | 24.6 | 91.5 | 70.7 | 235.0 | 16 | 4.4 | 2.4 | Flowering & pod formation |
| Sept | 29.1 | 19.1 | 24.1 | 92.7 | 60.9 | 59.3 | 8 | 5.1 | 2.8 | Pod development |
| Oct | 27.2 | 11.2 | 19.2 | 93.2 | 48.7 | 16.5 | 3 | 7 | 2.7 | Harvesting |
| **Mean** | **29.4** | **17.3** | **23.4** | **89.2** | **59.2** | **96.7** | **10** | **5.6** | **3.0** |  |
| **Pantnagar (E2)**(29°50'N , 79°30'E & 243.84 m a msl) | Jun | 32.9 | 26.6 | 29.8 | 88.0 | 68.0 | 38.4 | 2 | 3.9 | 5.9 | Sowing |
| Jul | 32.6 | 25.8 | 29.2 | 88.3 | 71.5 | 384.5 | 13 | 4.8 | 5.7 | Vegetative |
| Aug | 32.0 | 26.1 | 29.1 | 89.2 | 72.0 | 267.7 | 14 | 4.7 | 4.9 | Flowering & pod formation |
| Sept | 34.1 | 25.1 | 29.6 | 90.0 | 63.0 | 64.6 | 4 | 7.1 | 5.1 | Pod development |
| Oct | 33.5 | 20.2 | 26.8 | 87.8 | 52.5 | 10.2 | 1 | 8.2 | 4.2 | Harvesting |
| **Mean** | **33.1** | **24.8** | **28.9** | **88.6** | **65.4** | **153.1** | **6.8** | **5.7** | **5.2** |  |
| **Imphal (E3)**(24°76'0N, 94°05'E& 813 m a msl) | Jun | 30.0 | 22.5 | 41.3 | 89.0 | 69.5 | 307.4 | 23 | 3.9 | - | Sowing |
| July | 29.7 | 22.9 | 41.2 | 90.6 | 72.8 | 270.8 | 21 | 2.6 | - | Vegetative |
| Aug | 30.0 | 23.0 | 41.5 | 87.5 | 71.2 | 205.7 | 16 | 3.3 | - | Flowering & pod formation |
| Sept | 30.3 | 22.3 | 41.5 | 90.9 | 67.3 | 229.9 | 11 | 4.6 | - | Pod development |
| Oct | 29.3 | 20.9 | 39.8 | 93.0 | 67.0 | 165.8 | 12 | 5.4 | - | Harvesting |
| **Mean** | **29.9** | **22.3** | **41.0** | **90.2** | **69.6** | **235.9** | **16.6** | **4.0** | **-** |  |
| **Parbhani (E4)**(19°24' N, 76°78' E & 454 m a msl) | Jun | 33.8 | 23.5 | 28.7 | 82.0 | 54.0 | 199.5 | 11 | 5.8 | 5.4 | Sowing |
| July | 31.9 | 23.1 | 27.5 | 84.0 | 67.0 | 256.0 | 11 | 5.7 | 3.9 | Vegetative |
| Aug | 30.2 | 22.1 | 26.2 | 89.0 | 71.0 | 132.7 | 12 | 3.6 | 2.8 | Flowering & pod formation |
| Sept | 31.7 | 22.1 | 26.9 | 90.0 | 65.0 | 318.4 | 15 | 5.4 | 3.6 | Pod development |
| Oct | 32.2 | 20.6 | 26.4 | 90.0 | 51.0 | 117.0 | 06 | 6.4 | 4.0 | Harvesting |
| **Mean** | **31.9** | **22.3** | **27.2** | **87.0** | **61.6** | **204.7** | **11.0** | **5.4** | **3.9** |  |
| **Pune (E5)**(18014' N, 75021' E &548.6 m a msl) | Jun | 35.0 | 23.9 | 29.5 | 80.5 | 52.4 | 48.4 | 5 | 7.5 | - | Sowing |
| July | 29.8 | 22.5 | 26.2 | 89.1 | 72.7 | 193.4 | 12 | 7.0 | - | Vegetative |
| Aug | 29.4 | 21.9 | 25.7 | 90.1 | 75.3 | 49.7 | 6 | 5.5 | - | Flowering & pod formation |
| Sept | 29.8 | 19.4 | 24.6 | 91.3 | 70.5 | 142.2 | 5 | 6.0 | - | Pod development |
| Oct | 29.7 | 18.7 | 24.2 | 94.4 | 63.6 | 405.3 | 17 | 7.0 | - | Harvesting |
| **Mean** | **30.74** | **21.28** | **26.10** | **89.8** | **66.9** | **167.8** | **9.0** | **6.6** | - |  |