

SESSION VII: SUSTAINABLE AGRICULTURAL PRACTICES

AGRICULTURAL RISKS OF RAINFALL IN MAPALANA AREA

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The irregularity of rainfall in Mapalana area generates risks on agriculture creating dry spells as well as heavy rainfall periods through out the year. In order to understand the behavior of rainfall in Mapalana area daily rainfall data over 55 years (1950 – 2004) were assessed, considering the time units; days, weeks and months.

Mean daily, weekly and monthly rainfall by arithmetic mean method and dependable rainfall at 75 % probability level were calculated. Agricultural Rainfall Index values were calculated using rainfall values at 75 % probability level and pan evaporation data at Mapalana area.

Mean annual rainfall and annual dependable rainfall in the Mapalana area are 2248.6 mm and 2026.5 mm respectively. The daily arithmetic mean rainfall at Mapalana area is stated as 6.2 mm (Range 0.7 - 24.3) whereas daily dependable rainfall at 75 % probability level is recorded as zero. The daily dependable rainfall at 50 % probability level is also zero for 212 days in the year. The results reveals that even though the area receives 6.2 mm daily mean rainfall, there is not even 50 % probability of receiving rain in each day per year.

The weekly rainfall analysis shows that weekly arithmetic mean rainfall in the Mapalana area is 43.2 mm (Range 17.0 - 82.6). However, when considering the rainfall at 75 % probability level, 12 weeks per year showed zero dependable rainfall.

The mean monthly rainfall and mean dependable rainfall at 75 % probability level are 187.4 mm (Range 88.0 - 313.1) and 104.9 mm (Range 16.2 - 205.5) respectively. According to the Agricultural Rainfall Index, seven months are under water deficit condition.

The results revealed that yearly variation and irregularity of rainfall within the month is high in the Mapalana area. Although the mean rainfall calculated for daily, weekly and monthly records high values, water deficit periods occur in the Mapalana area through out the year except in May, June, September, October and November.