STUDIES ON THE PERFORMANCE OF *HEVEA* IN THE CHANGING CLIMATE OF GARO HILLS (MEGHALAYA)

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Meghalaya is one of the potential areas in North East India where natural rubber can be successfully cultivated. However, the sub-Himalayan conditions prevailing in this part of the country, particularly low temperature conditions during winter can be inhibitory to growth in the initial stages while summer temperatures are congenial. It has been observed that low air temperature plays a very important role in defoliation, refoliation and seed production in the region. Warmer winter conditions may increase survival rate and shorten gestation period. Early leaf fall and refoliation lead to early production of extra-floral nectar and helps seed production. This also helps in escaping from *Oidium* incidence. Thus a small shift in the climate can have significant impact on rubber cultivation in North East India. Gradual warming may make winter less severe and more areas in the North East may become suitable for rubber cultivation in the years ahead.

Keywords: Climate Change, Garo hills, Refoliation, Temperature.

Climate change has serious implications for the environment and agriculture (Perelet, 2010). Global temperature has increased by1.5-5.5 ^{0}C and the sea level has also risen in the last centuary (IPCC, 2007). In 2100 AD, atmospheric CO_2 will be around 550 ppm, if carbon cuts are not implemented. Change in temperature and uncertainties in rainfall pattern will lead to frequent occurrence of floods, droughts, heat waves and cold waves. In India, 1972, 1979, 1987, 2002 and 2009 were severe drought years which adversely affected the production of various agricultural crops (Rao *et al*., 2009). Crop seasons in temperate, tropical and sub-tropical regions are likely to be varied. Increase in temperature is likely to be around 3 ^{0}C by 2100 AD. Therefore it is high time to project climate change at the local and region levels and study its impact on major crops and plantation crops.

Traditionally, rubber cultivation is limited to humid tropics within 10^o N and S of the equator where agroclimatic conditions are suitable for *Hevea*. But with the increase

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