Maize ( Z. mays L.) is a tall, monecious annual grass cultivated in 956447 hectares of land in Nepal fetching annual production of 2,713,635 tonnes (MoAD, 2077). Its cultivation has been thriving in mostly traditional form despite claiming a major share as a staple food system. Consumption trend of Maize as of 2018 as suggested by the leading national maize research organization, NMRP, informs that 22.52 % of the daily cereal uptake per capita (Hirai et al. 1993) is met with Maize.

Maize planted as summer crop in terai region of Nepal has to, generally, withstand scenario of extreme heat during vegetative-reproductive transitioning stage, unfortunately. In contrast to biomass partitioning, severe effects were noted on final kernel number due to reduced overall biomass production under high temperature regimes (Echarte and Tollenaar 2006).

Recent findings concerning effects of weather extremes, particularly during late vegetative and reproductive stages of the maize have underlined mechanisms that relate metabolism in aboveground portion of crop to be detrimentally affected (Zhao et al. 2016; Obata et al. 2015). Although touted a C4 plant having elaborate metabolic features that improve survival at high temperature and arid conditions, maize still requires a favorable growing period to realize good harvest.

Noting critical role of temperature regime during flowering and grain filling with heat stress causing severe reduction in economic yield (Barnabás, Jäger, and Fehér 2008), breeding for heat-tolerant cultivars is crucial to sustain crop production in the future.