

## [P3] Abiotic Stress for Crop Production

Thu. Sep 9, 2021 12:15 PM - 2:00 PM Room 3 (Poster) (Abiotic Stress for Crop Production)

12:15 PM - 1:00 PM

### [P3-13] Crops Response to Water Stress Combination with Temperature Like— Rainfed Condition in Cereal

\*Nominated for Presentation Awards

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The effect of soil moisture content (MSC) on root and shoot growth was depended on crops. Under combination factors like– water and temperature stresses may change root and shoot phenotyping. This study aimed to evaluate the effect of various SMC combinations with low or high temperatures on morphological and physiological traits in maize, millet, rice, and sorghum. The experiments were conducted in the greenhouse by using a slope field. The same experimental design but the difference of daily temperature was conducted in September (range from 25–34°C)(Exp. A) and October/November (range from 15–24°C) (Exp. B), 2021. The treatments consisted of nine different SMC range from waterlogging to dry MSC. Shoot dry weight (SDW) of maize and sorghum was decreased by higher SMC in all experiments, but not for millet in Exp. B. However, rice was less change on SDW in all experiments. SDW of all crops had a significant correlation with leaf area and plant length for all experiments. Decreasing SDW of maize under low SMC combination with high temperature was observed in Exp. A. Millet and sorghum had lower SDW and for all SMC in Exp. B compared to Exp. A due to lower stomatal conductance. Our results suggested that the effect of SMC depends on crops and temperature. Waterlogging reduced SWD due to reduction of stomatal conductance, leaf area, and plant length in maize and sorghum with independent temperatures, but millet was dependent on temperatures. Under low SMC, maize was sensitive to high temperature. Millet and sorghum were sensitive to low temperature. Rice was less effect on SWC and independent temperature.

Keywords: Stomatal conductance, soil moisture content, morphology, shoot dry weight, slope field.