

[O32] Drought Physiology

Chair: Junichi Kashiwagi (Hokkaido University, Japan)

Thu. Sep 9, 2021 2:30 PM - 4:30 PM Room 3 (Oral) (Abiotic Stress for Crop Production)

3:25 PM - 3:40 PM

[O32-04] Drought Resistance of NERICA, Asian Rice and African Rice with Effects of Compost and Potassium Fertilizer

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Drought resistance of NERICA especially effects of fertilizer is not clarified enough. In this research, NERICA (two cultivars and two lines), Asian rice (one cultivar and parent of NERICA) and African rice (parent of NERICA) were cultivated in the field under drought and traits relevant to drought resistance, stomatal conductance, soil water content, SPAD value, leaf thickness, quantum yield and leaf temperature, were measured. Effects of compost and potassium fertilizer were compared among two Asian rice cultivars and two NERICA cultivars. One Asian rice and one NERICA line showed higher top dry weight and yield. In one Asian rice compost and potassium fertilizer tended to increase yield. African rice showed lower stomatal conductance and tended to show higher leaf temperature. Compost and potassium fertilizer tended to increase stomatal conductance and lower leaf temperature. Differences in yield were significantly correlated with those in stomatal conductance ($r=0.579^*$) and with those in leaf temperature ($r=-0.535^*$). Differences in stomatal conductance were significantly correlated with those in leaf temperature ($r=-0.719^*$) and with those in quantum yield in the evening (standard fertilizer: $r=0.814^*$). Differences in leaf temperature were significantly correlated with those in quantum yield at midday ($r=0.524^*$) which were significantly correlated with those in leaf thickness (standard fertilizer: $r=0.921^{**}$), that were significantly correlated with those in SPAD value ($r=0.718^{**}$). Importance of maintaining high stomatal conductance, low leaf temperature, high leaf thickness and SPAD value and effects of compost and potassium fertilizer under drought condition was suggested.