

[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

[P3-05] Comparison of Drought Resistance of NERICA, Asian Rice and African Rice and Effects of Phosphorus Fertilizer

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Recently NERICA was developed by a crossing of African rice and Asian rice and is considered to be drought resistant, but drought resistance of NERICA is not clarified enough. In this research, NERICA (four cultivars and two lines), Asian rice (three cultivars 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 values and leaf thickness, were measured and compared with dry matter production and yield. Effects of phosphorus fertilizer were also compared among two NERICAs. One NERICA cultivar, one NERICA line and two Asian rice cultivars showed higher top dry weight and one Asian rice cultivar, one NERICA line and one NERICA cultivar showed higher yield. In one NERICA phosphorus fertilizer tended to increase top dry weight and yield. Asian rice cultivars tended to show higher stomatal conductance than NERICA. Cultivar and line differences in yield (ear weight) were significantly correlated with those in stomatal conductance (average: $r=0.679^{**}$, first measurement: $r=0.796^{**}$) and in Asian rice and NERICA with those in leaf thickness ($r=0.662^{**}$). Cultivar and line differences in stomatal conductance were significantly correlated with those in leaf thickness ($r=0.633^{*}$) and cultivar and line differences in leaf thickness were significantly correlated with SPAD value ($r=0.643^{**}$) on similar date. Importance of maintaining high stomatal conductance and high leaf thickness, and effects of phosphorus fertilizer under drought condition was suggested.