

Supplementary Material

Improvement of grain yield under moisture and heat stress conditions through marker-assisted pedigree breeding in rice (*Oryza sativa* L.)

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Supplementary Figures



Fig. S1. Field view of drought stress experiment.

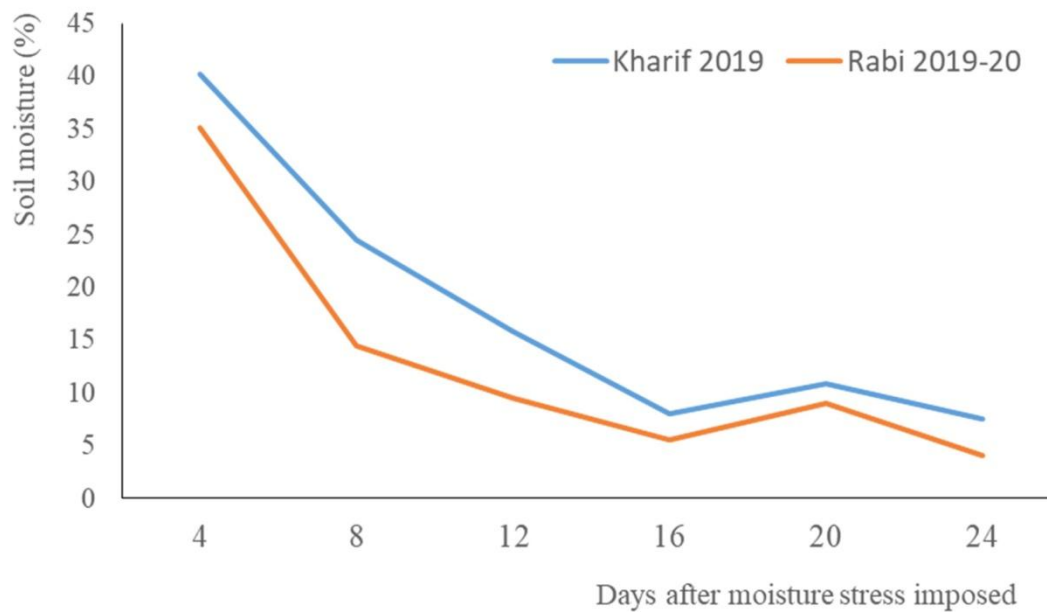
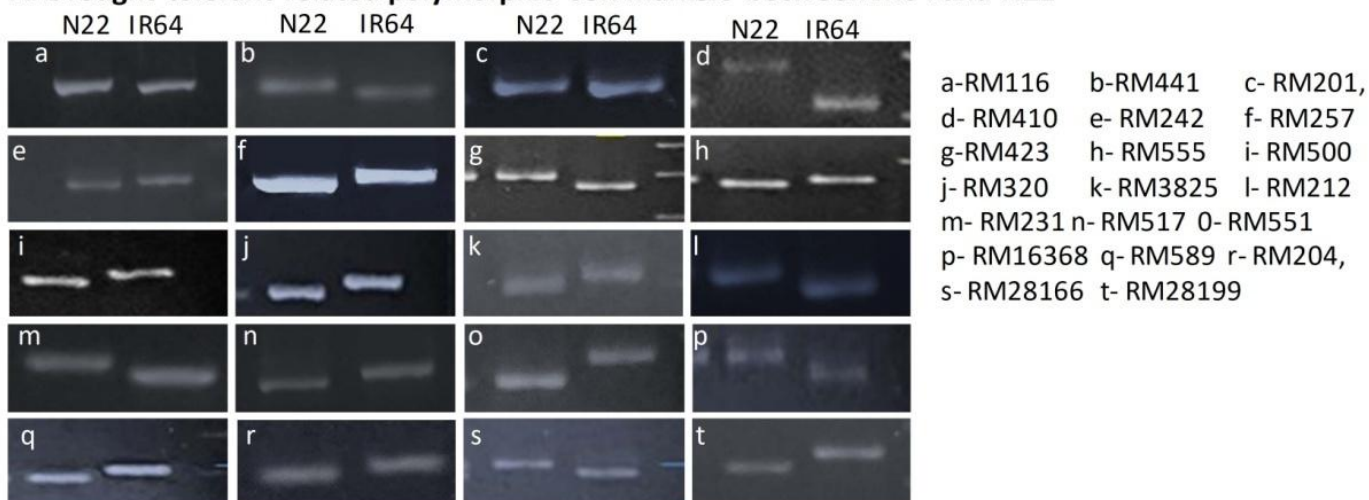


Fig. S2. Soil moisture percentage measured at 60 cm depth of soil in moisture stressed rice field. *kharif*: June - November, *rabi*: December – April.

A. Drought tolerant related polymorphic SSR markers between IR64 and N22



B. Heat tolerant related polymorphic SSR markers between IR64 and N22.



C. Yield related polymorphic SSR markers between IR64 and N22.

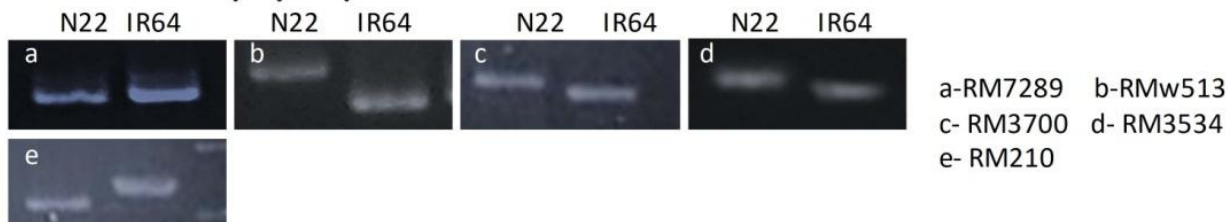
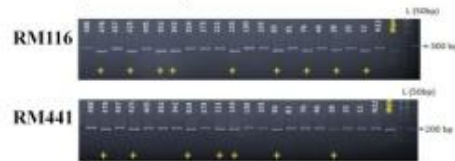
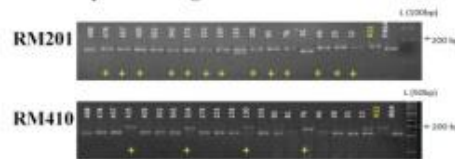


Fig. S3. Parental polymorphism study using markers linked to drought stress (A), heat tolerance (B) and grain yield (C) QTLs.

A. Selection of F₆ plants using molecular markers linked to WUE QTL, %NII.1



B. Selection of F₆ plants using molecular markers linked to WUE QTL, *Mr19a*



C. Selection of F₆ plants using molecular markers linked to WUE QTL, *SLA9.1*



D. Selection of F₆ plants using molecular markers linked to WUE QTL, *Ci/Ca2.1*



E. Selection of F₆ plants using molecular markers linked to WUE QTL, *qWue7a*



Fig. S4. Agarose gel pictures related to selection of plants in F₆ generation using molecular markers linked to WUE QTLs. Abbreviation: L- Ladder.

A. Selection of F₆ plants using molecular markers linked to yield under drought QTL, *qDTY1.2*



B. Selection of F₆ plants using molecular markers linked to yield under drought QTL, *qDTY3.2*



C. Selection of F₆ plants using molecular markers linked to yield under drought QTL, *qDTY4.1*



D. Selection of F₆ plants using molecular markers linked to yield under drought QTL, *qDTY6.1*



E. Selection of F₆ plants using molecular markers linked to yield under drought QTL, *qDTY12.1*

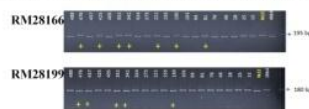
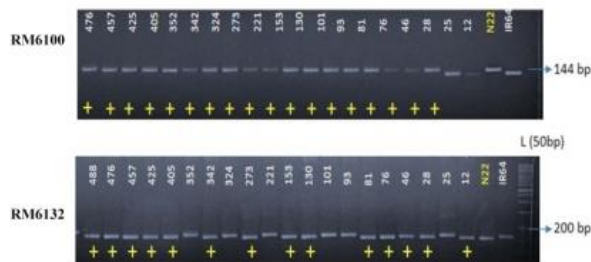


Fig. S5. Agarose gel pictures related to selection of plants in F₆ generation using molecular markers linked to yield under stress QTLs. Abbreviation: L- Ladder.

A. Selection of F₆ plants using molecular markers linked to heat tolerance QTL, *qSSPF10*



B. Selection of F₆ plants using molecular markers linked to heat tolerance QTL, *qHT6*



Fig. S6. Agarose gel pictures related to selection of plants in F₆ generation using molecular markers linked to heat tolerance QTLs. Abbreviation: L- Ladder.

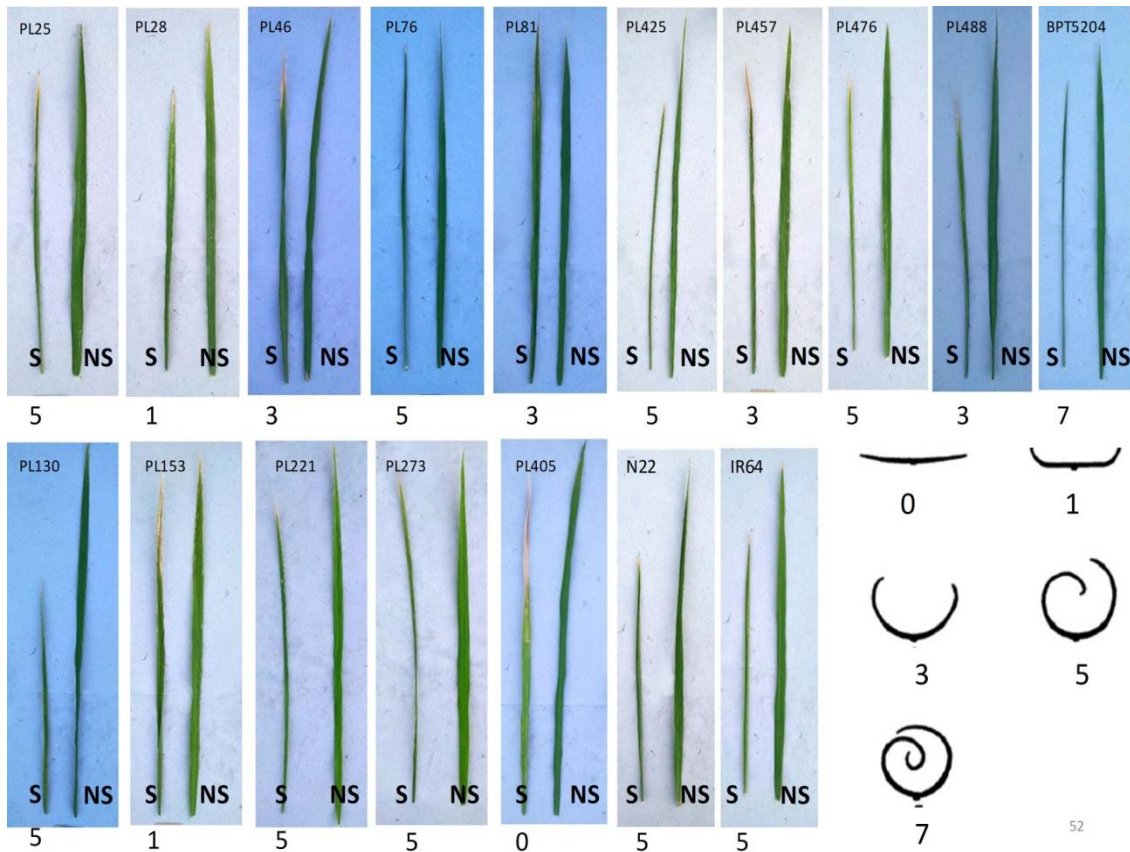


Fig. S7. Leaf rolling of QTL pyramided lines. Abbreviations: NS- non stress, S- severe moisture stress condition.



Fig. S8. Panicle architecture of QTL pyramided lines. Abbreviations: NS- non-stress, S- severe moisture stress condition.