Fig. S1: Manhattan and QQ plots for GI in each separate environment
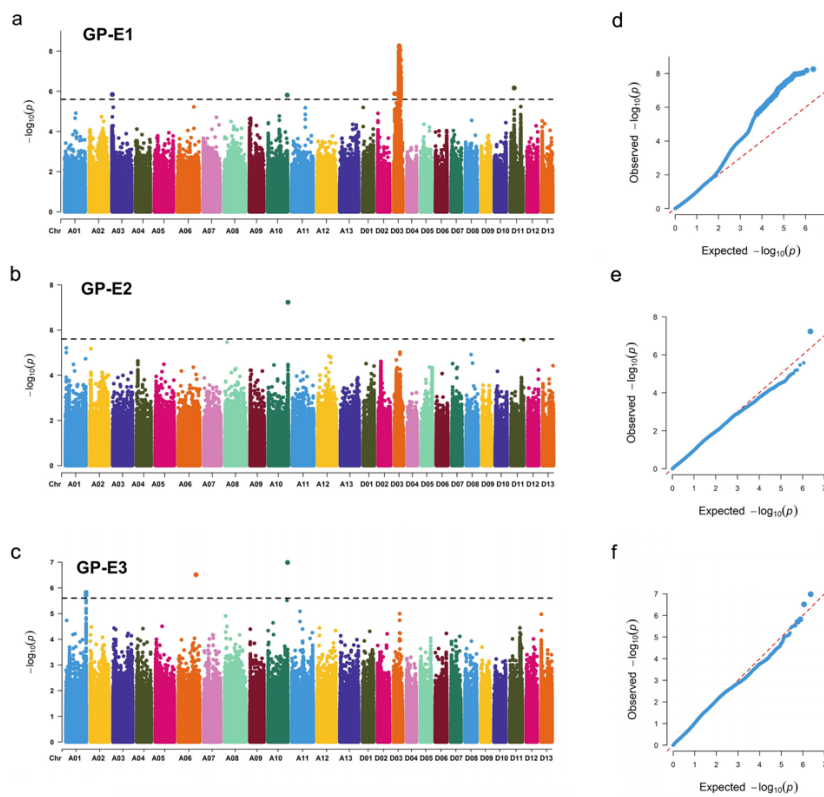

Fig. S2: Manhattan and QQ plots for GP in each separate environment
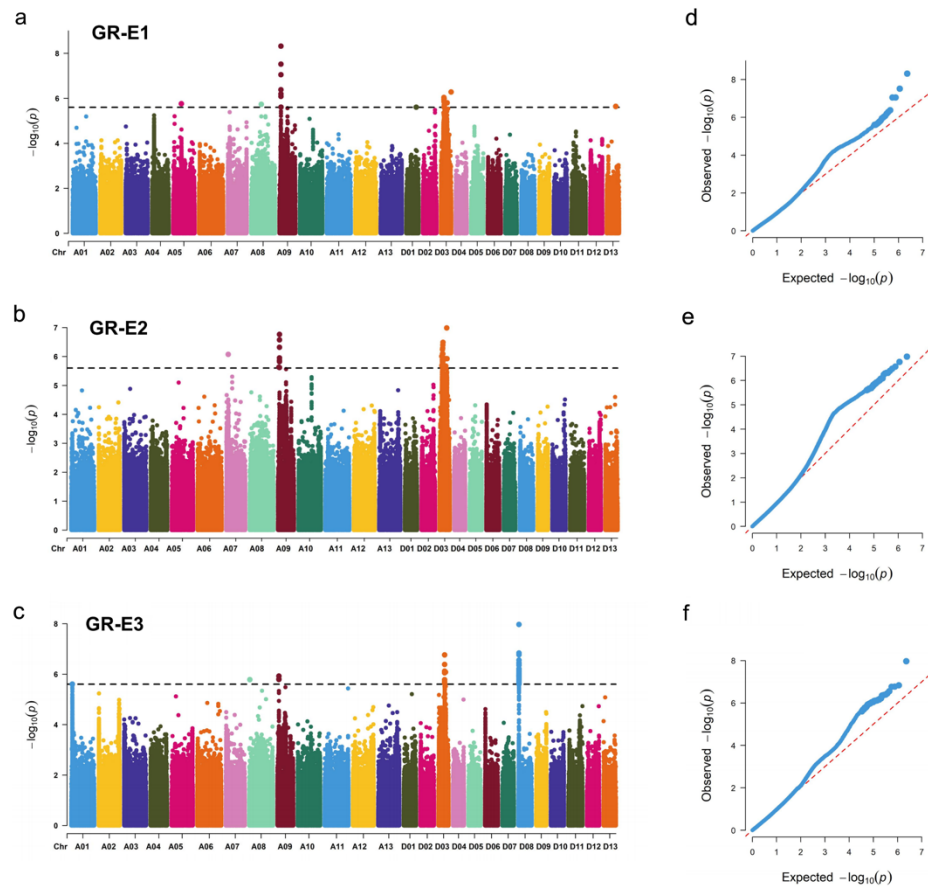
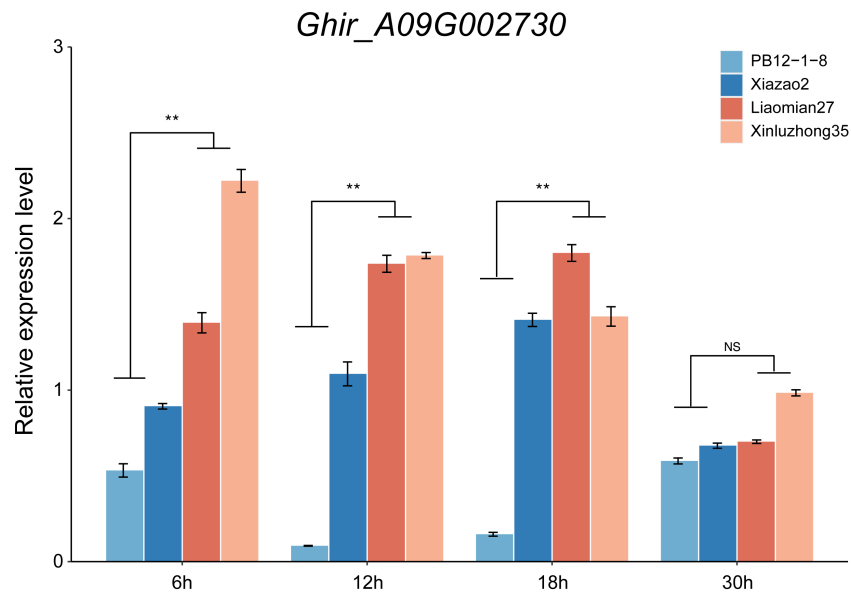**Fig. S3:** Manhattan and QQ plots for GR in each separate environment

Fig. S4: Expression level analysis of *Ghir_ A09G002730* between "Liaomian27', 'Xinluzhong35', 'PB12-1-8', and 'Xiazao2' during seed germination stage (6, 12, 18 and 30 h) by qRT–PCR (** $P < 0.01$, * $P < 0.05$).

Fig. S5: Expression level analysis of *Ghir_ D03G009280* between ''Liaomian27', 'Xinluzhong35', 'PB12-1-8', and 'Xiazao2' during seed germination stage (6, 12, 18 and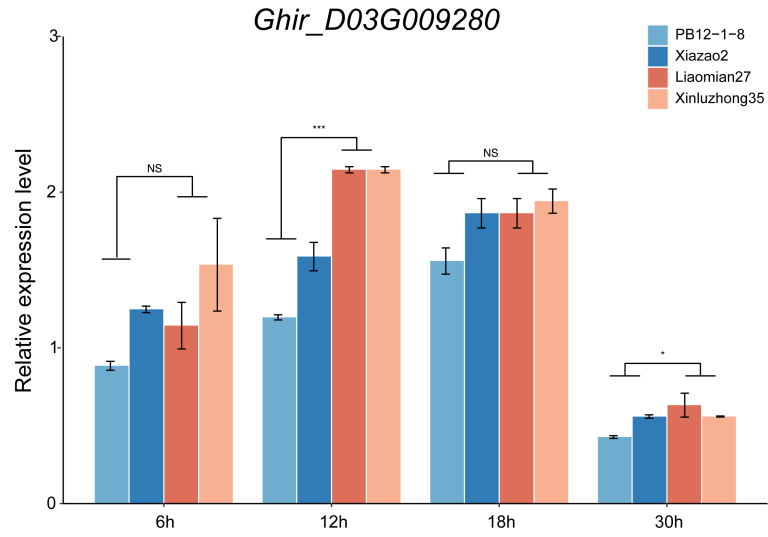 30 h) by qRT–PCR (** P < 0.01, * P < 0.05).