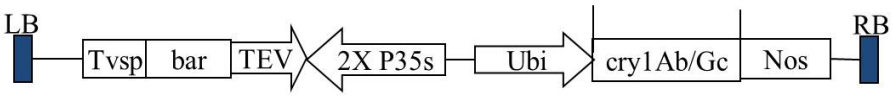
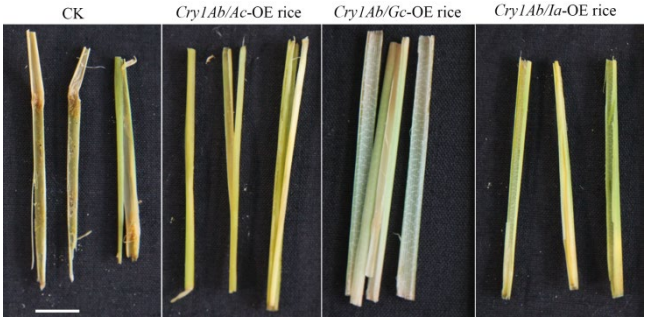
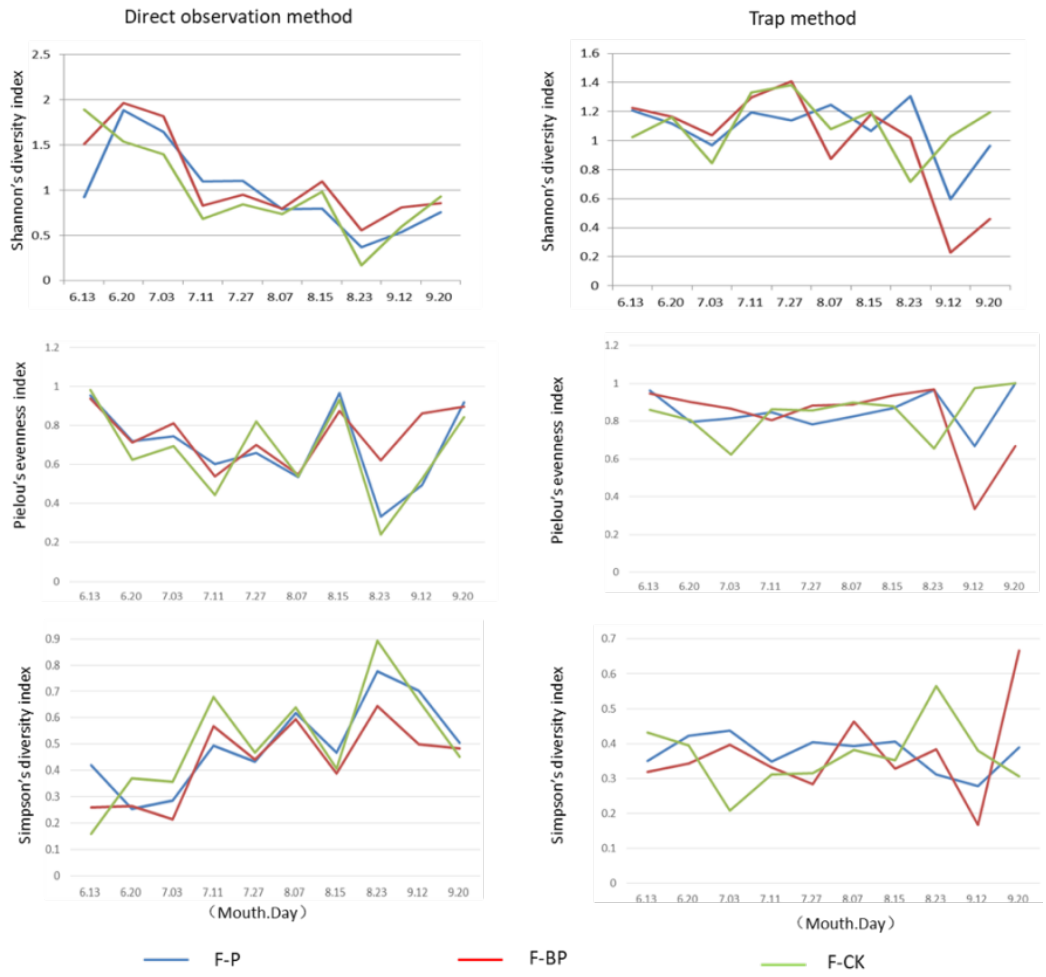


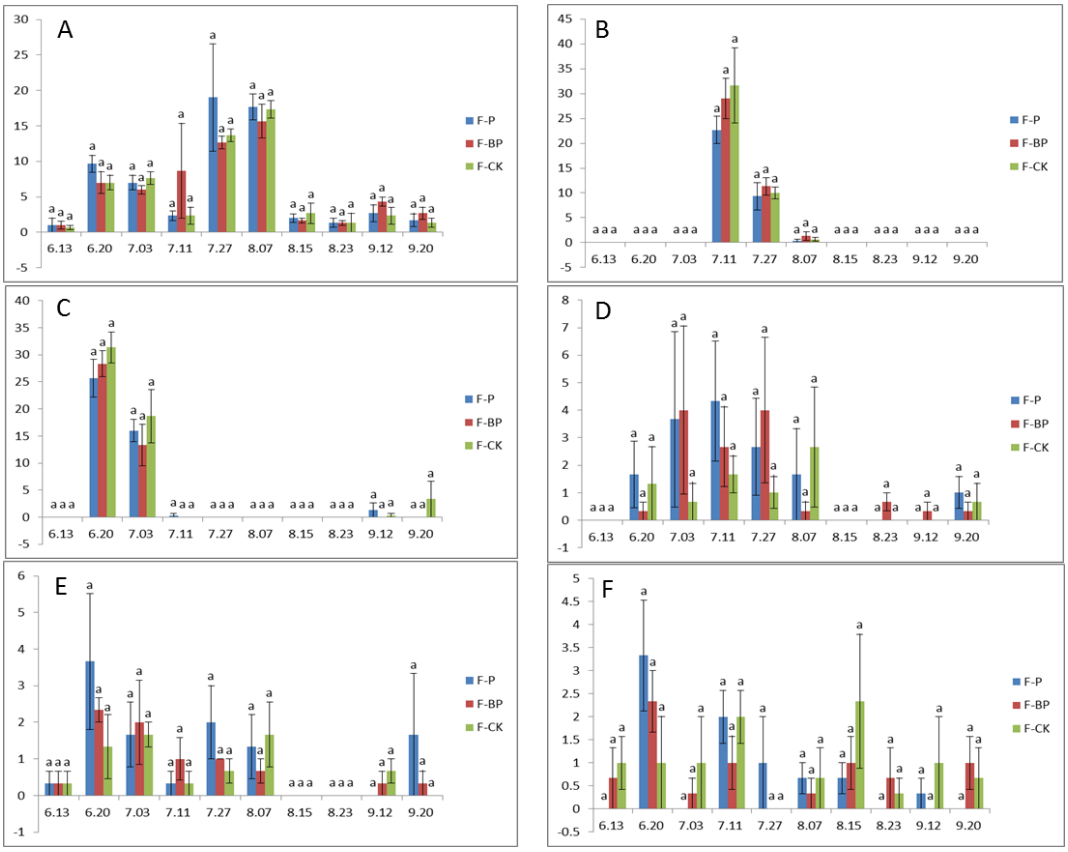
Supplementary Figure 1. A schematic diagram of the T-DNA region of the plant expression vector pTF101.1-ubi-cry1Ab/1Gc. Tvsp: terminator; *bar*: resistance gene encoding sequence; TEV: enhancer; *2×P35s: double cauliflower mosaic virus* (CaMV) 35S promoter; Ubi: maize *ubiquitin* promoter; *Cry1Ab/1Gc*: *cry1Ab/1Gc* gene encoding sequence; Nos: nopaline synthase terminator.



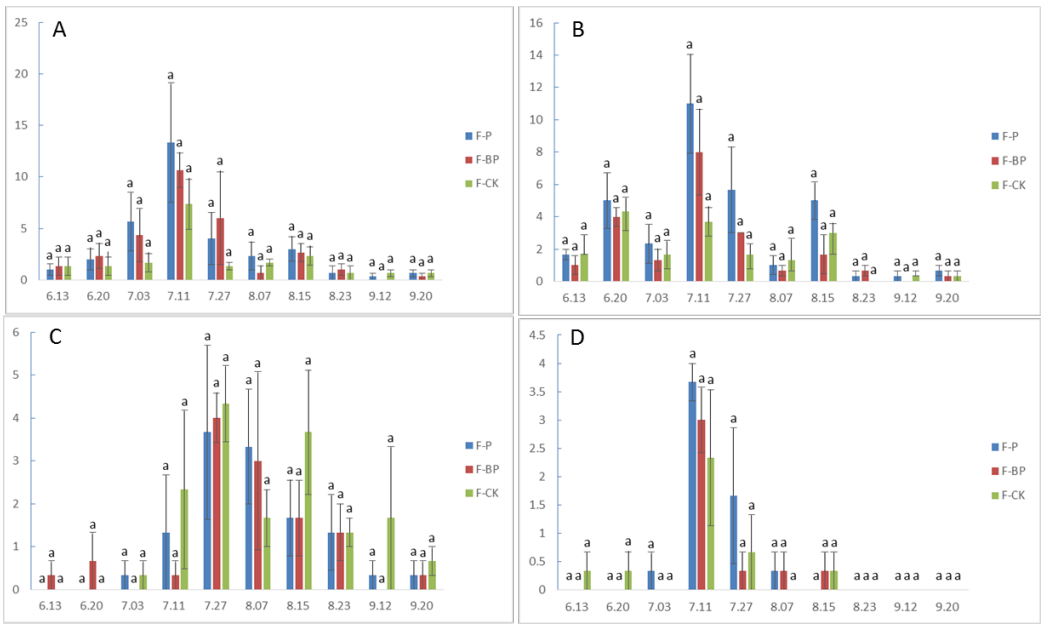
Supplementary Figure 2. Insect resistance performance of rice stems in the laboratory. CK: Jijing 88; Cry1Ab/Ac-OE rice: transgenic *Cry1Ab/Ac* rice; Cry1Ab/Gc-OE rice: transgenic *Cry1Ab/Gc* rice; Cry1Ab/Ia-OE rice: transgenic *Cry1Ab/Ia* rice. Scale bar, 1 cm



Supplementary Figure 3. Effects on arthropod community structure by direct observation method and pitfall trap method. The abscissa represents survey time. Three indices were used to analyze the dynamics of the arthropod community: Shannon's diversity index, Pielou's diversity index, and Simpson's diversity index.



Supplementary Figure 4. Effects on arthropod community structure (direct observation method). (**A**) *Harmonia axyridis*; (**B**) ladybird larvae; (**C**) aphids; (**D**) *Monolepta hieroglyphica*; (E) spiders; (F) *Propylaea japonica*. F-CK: non-Bt maize control; F-P: Cry1Ab/Gc maize spraying herbicide glufosinate; F-BP: Cry1Ab/Gc maize with no glufosinate application. The ordinate represents the average number of individuals in each community ± SD, and the abscissa represents survey time. Statistically significant differences according to one-way ANOVA (a: P>0.05).



Supplementary Figure 5. Effects on arthropod community structure (Pitfall trap method). (A) *Teleogryllus infernalis*; (B) Earwig furficulidae; (**C**) opiliones; (**D)** *Carabidae sp.* F-CK: Non-Bt maize control; F-P: Cry1Ab/Gc maize spraying herbicide glufosinate; F-BP: Cry1Ab/Gc maize with no glufosinate application. The ordinate represents the average number of individuals in each community ± SD, and the abscissa represents survey time. Statistically significant differences according to one-way ANOVA (a: P>0.05).

Supplementary Table 1. Mortality rate of rice stem borer feeding on rice stems

Plant line	No. of rice stem borers	Average mortality rate of rice stem borer (%)
CK	50	18.00±0.13
cry1Ab/Gc-OE	50	100.00±0.00**
cry1Ab/Ac-OE	50	96.00±0.00**
cry1Ab/Ia-OE	50	96.00±0.00**

Notes: Means (±SE) within a column followed by different letters are significantly different (*t* -test, ***P*< 0.01).

Supplementary Table 2. Insect resistance of transgenic lines against Asian corn borer

Maize lines	No. of plants	No. of channels	Length of tunnel (cm)	No. of live larvae
CK	12	2.92±0.62	4.75±1.23	0.75±0.25
HG-1	14	0.36±0.17 **	1.36±1.00 **	0.00±0.00 **
HG-2	11	0.82±0.30 **	0.91±0.67 **	0.00±0.00 **
HG-3	15	0.80±0.20 **	1.83±0.69 **	0.13±0.13 **

Notes: Means (±SE) within a column followed by different letters are significantly different (T test, ***P*< 0.01).