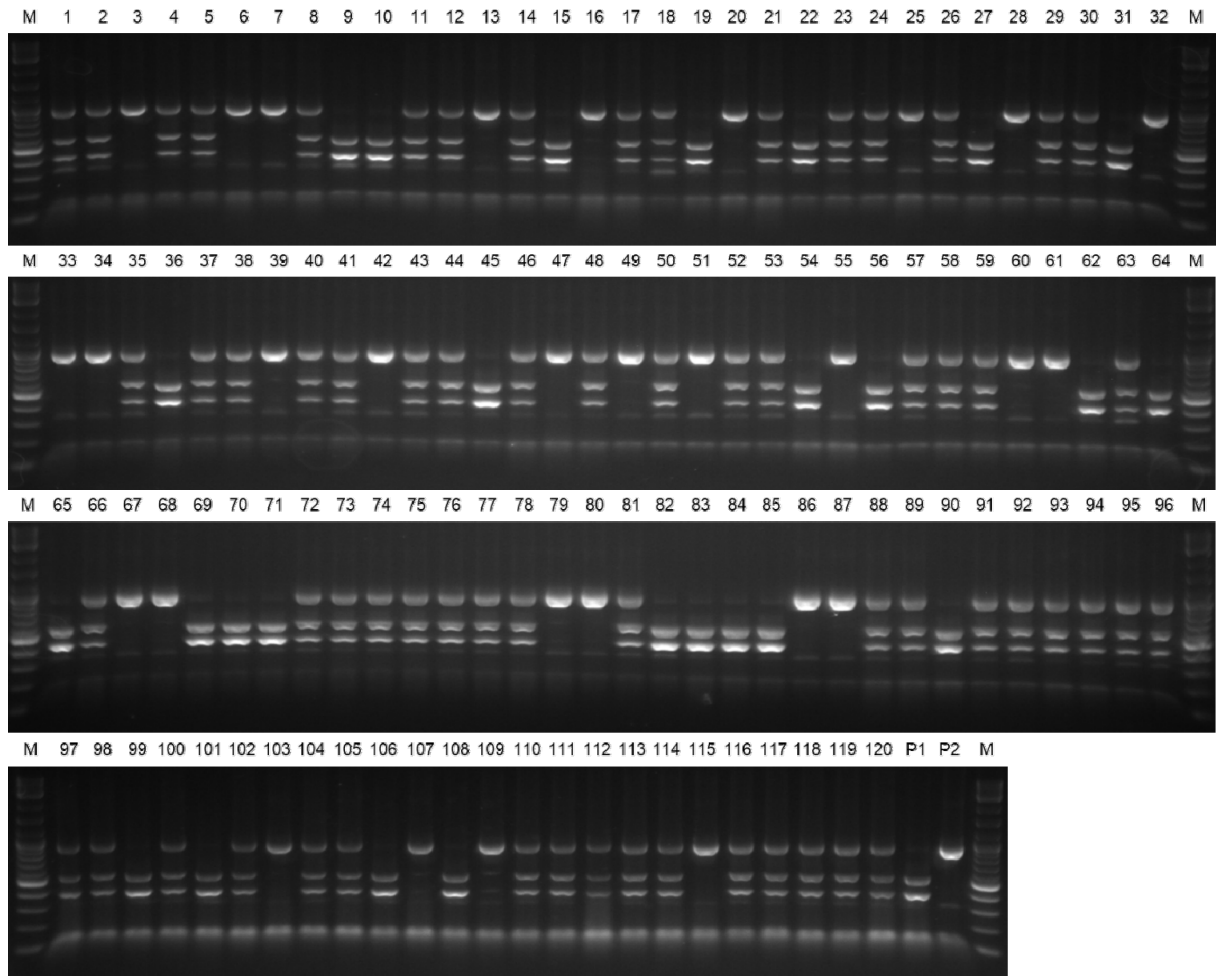
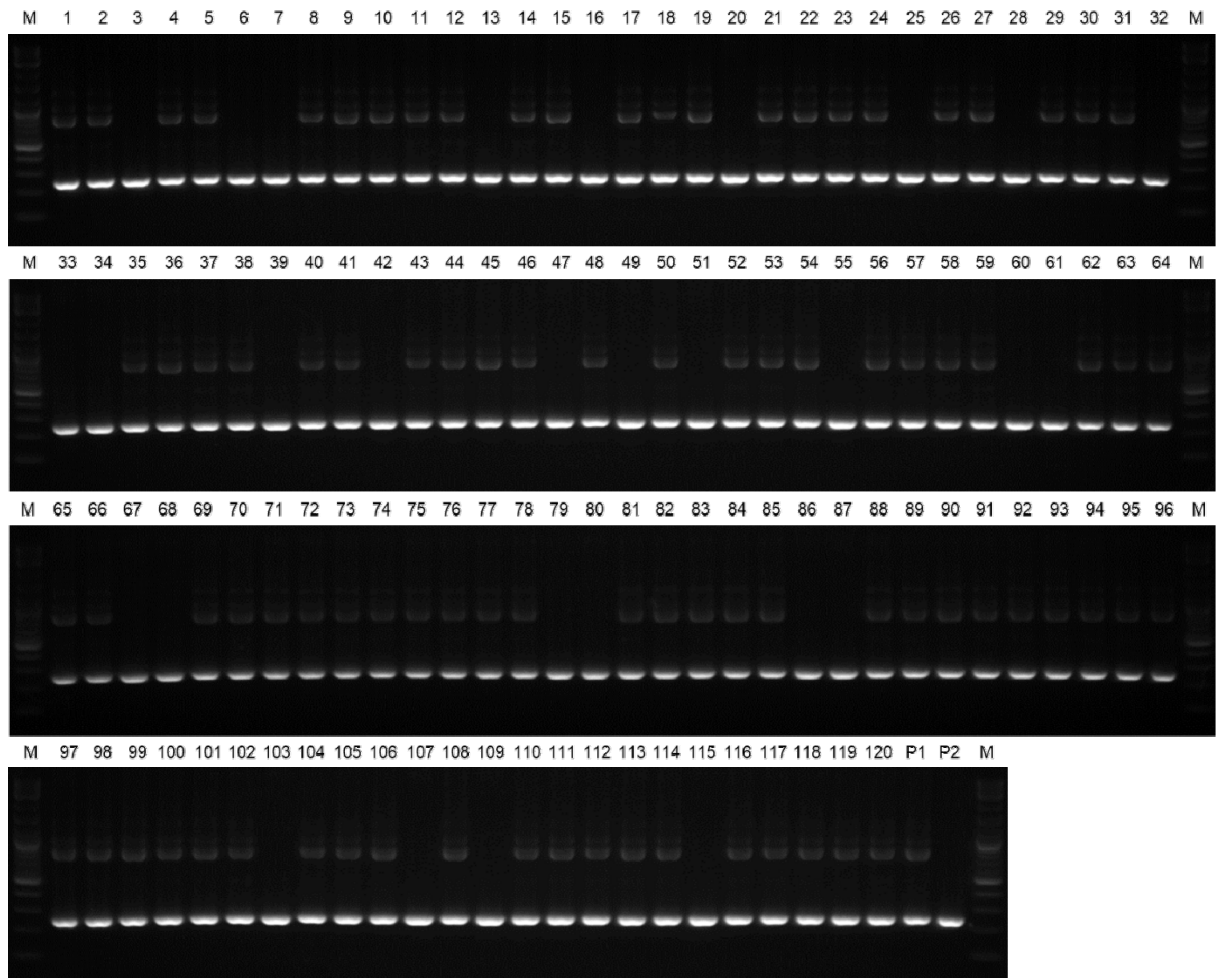


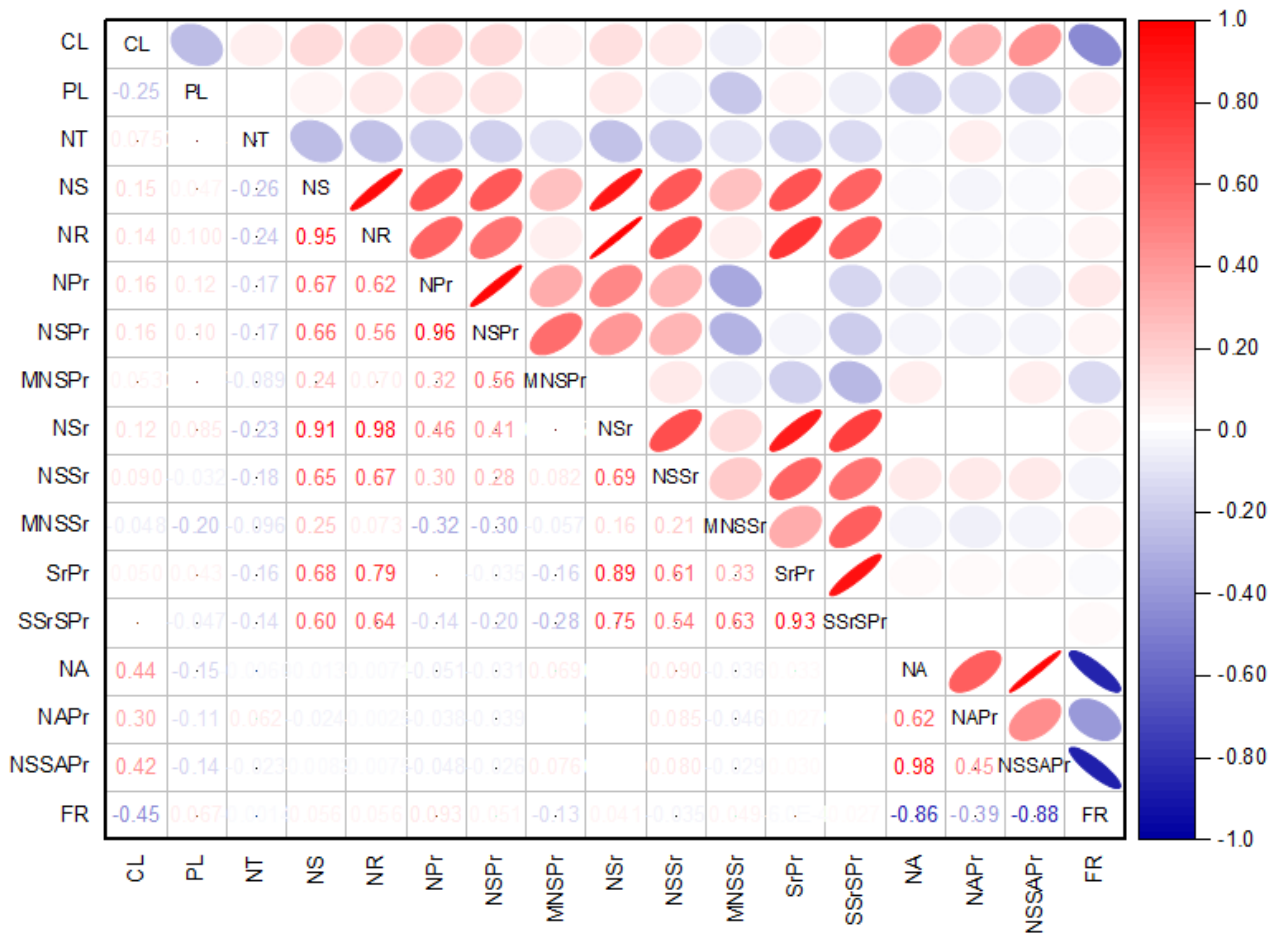
**Supplementary Fig. 1.** Application of *BPH3IND* to select plants into which *Bph3* has been introduced. PCR was performed using the *BPH3IND* primer set, and PCR amplicons were loaded on 0.8% agarose gel. Jeonju686 has *Bph3*, but JJ621MR does not. Among 120  $F_2$  plants derived by crossing Jeonju686 and JJ621MR, only 43 plants were identified as *Bph3*. M: size marker, P1: JJ621MR, P2: Jeonju686.



**Supplementary Fig. 2.** Application of 7312.T4A to select plants into which *Bph18* has been introduced. PCR was performed using the 7312.T4A primer set, and PCR amplicons were digested with *HinfI*. For plants containing *Bph18*, 964bp is digested and bands of 566bp and 398bp are detected. Because JJ621MR has *Bph18*, bands of 566bp and 398bp were detected, but Jeonju686 only detected a band of 964bp. Among 120 F<sub>2</sub> plants, only 26 plants had *Bph18* identified. M: size marker, P1: JJ621MR, P2: Jeonju686.



**Supplementary Fig. 3.** Application of *BPH26IND* to identify *BPH26*. PCR was performed using the *BPH26IND* primer set, and PCR amplicons were loaded on 0.8% agarose gel. Jeonju686 has *BPH26*, but JJ621MR does not have *BPH26*. Among 120  $F_2$  plants derived by crossing Jeonju686 and JJ621MR, only 38 plants were identified as *BPH26*. M: size marker, P1: JJ621MR, P2: Jeonju686.



**Supplementary Fig. 4.** Heatmap for correlation coefficients between agricultural traits related to panicle and yield of rice. This is a heat map that can identify the value of correlation coefficients between each pair of agricultural traits. Blue represents negative relationships, and red represents positive relationships. CL: Culm length, PL: Panicle length, NT: Number of tillers, NS: Number of spikelets, NR: Number of rachis-branches per panicle, NPr: Number of RPBs per panicle, NSPr: Number of spikelets on PRBs per panicle, MNSPr: Mean number of spikelets on a PRB, NSr: Number of SRBs per panicle, NSSr: Number of spikelets on SRBs per panicle, MNSSr: Mean number of spikelets on a SRB, SrPr: Ratio of SRBs to PRBs, SSrSPr: Ratio of spikelets on SRBs to spikelets on PRBs, NA: Number of abortive grains, NAPr: Number of abortive grains on PRBs per panicle, NSSAPr: Number of abortive grains on SRBs per panicle, FR: Fertile rate.