



Figure S1. Symbiotic performance of suppressor mutants on wild soybean plants. The combined mutants were obtained by in frame deletion of related genes in the $\Delta rirA$ background as indicated. The *asbB* and *fatBDCE* were also deleted in the $\Delta rirA$ background for comparison. Representative pictures of vertical section of nodules are shown. Different letters indicate significant difference between means (mean \pm SE; ANOVA followed by Duncan's test, alpha = 0.05) based on more than thirteen scored plants from three independent experiments. Detailed statistics of symbiotic performance for test strains are shown in Table S5.