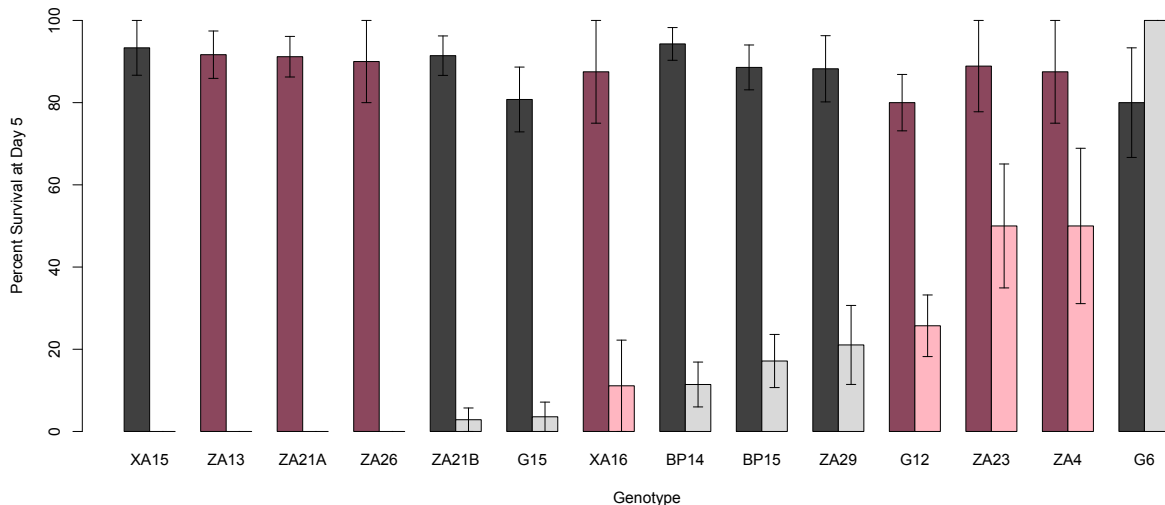


Supplementary Information C

Symbiont genotypes are likely to vary among populations, and this genetic variation is expected to influence the extent to which protective symbionts are able to increase the resistance of their hosts. In the main text, we discuss how in two pairs of host and symbiont, *Regiella* does not confer protection from the generalist fungal pathogen *Beauveria bassiana*. To ensure that these results were not specific to the two strains we used in the experiment, we assayed several additional wild-caught lines, some with and some without *Regiella*, for symbiont-mediated protection. With this experimental design, we are not controlling for host genotype, as each strain used in the experiment will differ both in terms of symbiont and host genotypic background. However, we are able to determine if multiple wild-collected lines with *Regiella* are, on average, more resistant to *Beauveria* than wild-collected lines without symbionts. We fit a logistic regression model (a Generalized Linear Model (GLM) with binomial error structure and logit link function) to aphid survival with symbiont, fungal exposure, and genotype as fixed effects. Minimal models were derived by removing terms followed by model comparison, and terms were retained in the minimal model if their removal significantly reduced the explanatory power of the model. Exposure to *Beauveria* significantly reduced survival (Binomial GLM, $\chi^2 = 394$, d.f. = 1, $p = 2.2 \times 10^{-16}$), and we found significant variation in survival ($\chi^2 = 23.5$, d.f. = 13, $p = 0.036$) and in resistance to *Beauveria* among aphid genotypes (Treatment * Genotype interaction, $\chi^2 = 51.1$, d.f. = 13, $p = 1.9 \times 10^{-6}$). Symbiont status had no effect on survival or *Beauveria* resistance, and thus it was removed from the model. Variation in protection among *Regiella* genotypes is an ongoing area of investigation, and clearly more data are needed. However, these results suggest that the lack of protection from *Beauveria* we describe in two genotypes in the main text is not merely a sampling effect.



Supplementary Figure C: *Beauveria* infection with wild-collected lines. Survival of each aphid was recorded 5 days after infection. Pink bars (ZA13, ZA21A, ZA26, XA16, G12, ZA23, ZA4) represent aphid lines that harbor *Regiella*, black bars (XA15, ZA21B, G15, BP14, BP15, ZA29, G6) represent symbiont-free genotypes. The darker bars of each color are Control aphids, and the lighter bars are *Beauveria* infected aphids.