Supporting Information

Goodspeed et al. 10.1073/pnas.1116368109

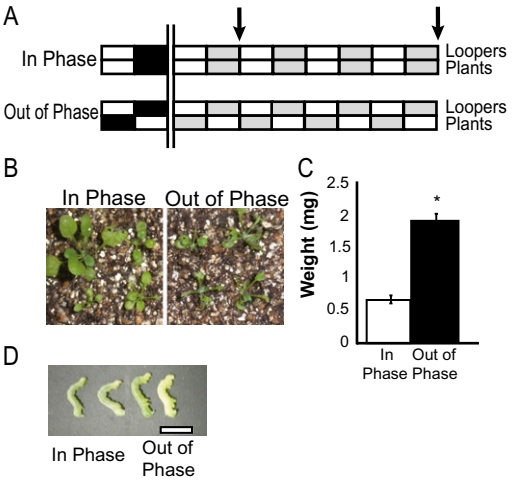

Fig. S1. *Arabidopsis* is more resistant to herbivory when entrained in-phase rather than out-of-phase with *Trichoplusia ni* looper entrainment and subjected to constant light conditions. (*A*) Light/dark cycle entrainment scheme and experimental protocol. Rectangles symbolize 12-h periods of light (open), darkness (filled), and light representing subjective night (light gray). The two arrows represent timing of *T. ni* addition and *T. ni* removal, respectively. Double vertical bars symbolize the shift from light/dark cycles to constant light. (*B*) Plant tissue remaining from plants entrained in-phase and out-of-phase with *T. ni* entrainment after 72 h of plant–*T. ni* coincubation. (*C*) Wet weight of *T. ni*. Mean ± SE; $n = 15$; $^*P < 0.05$; two-tailed paired *t* test. (*D*) Representative *T. ni* at 72 h postcoincubation. (Scale bar, 0.5 mm.)

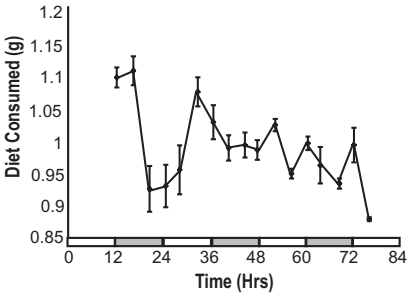

Fig. S2. *T. ni* feeding is circadian-regulated, with enhanced eating during subjective day under constant light. *T. ni* entrained in 12-h light/dark cycles were provided food under constant light conditions. Diet weight lost as a result of *T. ni* feeding after each 4-h interval is graphed. Graphed values were determined by calculating the difference of diet weight before and after incubation with *T. ni* and, to account for evaporative weight loss, subtracting the weight difference of comparable diet samples before and after incubation without *T. ni* for the same 4-h interval under similar conditions. Fresh diet was given every 4 h. Mean ± SE; $n = 3$.

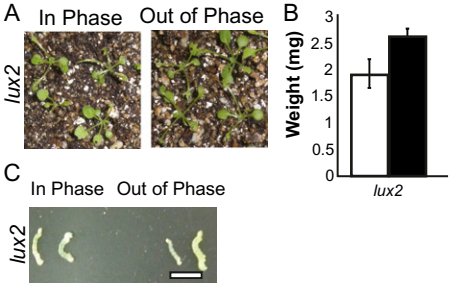

Fig. S3. Arrhythmic *Arabidopsis* plants lack enhanced herbivory resistance when entrained in-phase with *T. ni* loopers and subjected to constant light conditions. (*A*) Tissue remaining from *lux2* entrained in-phase and out-of-phase with *T. ni* entrainment after 72 h of plant–*T. ni* coincubation. (*B*) Wet weights of *T. ni* fed on in-phase (open bars) or out-of-phase (filled bars) plants. Mean ± SE; $n = 15$; $P < 0.05$; two-tailed paired *t* test. (*C*) Representative *T. ni* at 72 h postcoincubation. (Scale bar, 0.5 mm.)

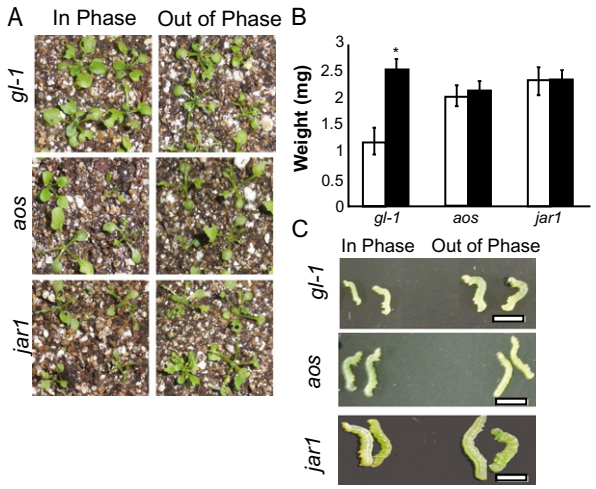

Fig. S4. Jasmonates are required for enhanced herbivory resistance when entrained in-phase with *T. ni* loopers and subjected to constant light conditions. (*A*) Tissue remaining from *gl-1*, *aos*, and *jar1* entrained in-phase and out-of-phase with *T. ni* entrainment after 72 h of plant–*T. ni* coincubation in constant light. (*B*) Wet weights of *T. ni* fed on in-phase (open bars) or out-of-phase (filled bars) plants. Mean ± SE; $n = 15$; $^*P < 0.05$; two-tailed paired *t* test. (*C*) Representative *T. ni* at 72 h postcoincubation. (Scale bars, 0.5 mm.)

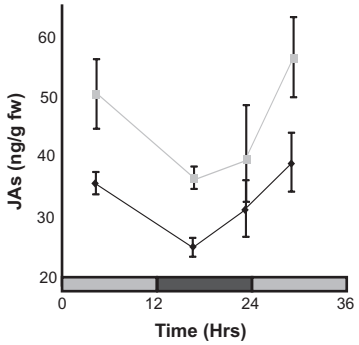

Fig. S5. Jasmonates (JAs) accumulate with circadian rhythmicity both in the presence and absence of *T. ni* loopers; however, jasmonate levels are elevated in *T. ni*-infested plants. Accumulation of jasmonates shows circadian periodicity in both control (no *T. ni*-exposed) plants (black line) and *T. ni*-infested plants (gray line). For the *T. ni*-infested samples, 20 *T. ni* were coincubated with each pot of 16 plants 6 h before the first collection time. Control samples were treated similarly but without *T. ni* addition. Plants were harvested every 6 h. Mean ± SE; $n = 3$. fw, fresh weight.