Methods for these 3 experiments are described in detail in Orrock, Connolly, and Kitchen. In press. Plant induced defenses reduce herbivory by increasing cannibalism. Nature Ecology and Evolution. Brief summary of methods:

Experiment 1. The effects of plant induction on rates of intraspecific predation were evaluated with 21-day-old tomato (Solanum lycopersicum L., var. “Moneymaker”) plants assigned to one of four induction levels following exposure to one of four concentrations of an aerosolized volatile chemical: control (0.125% Triton-X), low (0.1 mM Methyl Jasmonate [MeJA] + 0.125% Triton-X), medium (1.0 mM MeJA + 0.125% Triton-X), and high (10 mM MeJA + 0.125% Triton-X). These tomato plants were then housed in arenas with larval lepidopteran herbivores (Beet armyworms, Spodoptera exigua). Cannibalism was monitored for 8 days and the amount of plant tissue remaining at the end of the experiment was determined by weighing aboveground biomass.

Experiment 2. Tomato (Solanum lycopersicum L., var. “Moneymaker”) plants were grown for 21 days in a growth chamber at 25C with a 12:12 photoperiod. Plants were sprayed with either a control solution of 0.125% Triton-X) or a medium-induction solution of 1.0 mM MeJA + 0.125% Triton-X (identical to the respective solutions used in experiment 1). On Feb. 22, a leaflet from each plant was clipped and placed in a 2-oz plastic cup. A singe third-instar larva of S. exigua was weighed and placed in each cup. A cannibalism treatment with two levels (dead conspecifics added to cup, or no conspecifics added to cup) was randomly assigned to each cup (stratified by induction treatment). Two dead larvae were added at the start of the trial on Feb. 22; another 2 dead larvae were added 24 hours later on Feb. 23. The trial was concluded after 48 hours, when the amount of dead larvae consumed was visually estimated and the living larvae and remaining plant material were weighed.

Experiment 3. To estimate rates of mass loss in tomato leaves due to water loss over the two-day feeding trial, we weighed a single, fresh tomato leaf (Solanum lycopersicum L., var. “Moneymaker”) and placed it in a disposable 2 ounce plastic cup with a lid. This was replicated for leaves from ten individual tomato plants. After two days, leaves were re-weighed to determine mass loss.