**Tomato Methods (S. lycopersicum and S. pimpinellifolium)**

We obtained seeds for 12 selected tomato genotypes in consultation with the UC Davis Tomato Genetics Resource Center. These include a diverse sample of 6 genotypes of domesticated tomato’s closest wild relative (S. pimpinellifolium) from throughout its native range (Peru, Ecuador) and 6 heritage and modern varieties of S. lycopersicum. We bulked all genotypes in long-day (16h photoperiod) greenhouse conditions at UC Davis in fall 2014. We grew plants under metal-halide lamps using day/night temperatures at 25°C/18°C in 4” pots filled with standard potting soil (Sunshine mix #1, Sun Gro Horticulture). Plants were watered once daily and pruned and staked to maintain upright growth. Fruits were collected at maturity and stored at 4°C in dry paper bags until seed cleaning. To clean the seeds, we incubated seeds and locule contents at 24°C in 1% protease solution (Rapidase C80 Max) for 2h, then rinsed them in deionized water and air-dried. We then stored seeds in a cool, dry, dark location until use.

To grow plants for detached leaf assays, we bleach-sterilized all seeds and germinated them on paper in the growth chamber using flats covered with humidity domes. At 7 days we transferred seedlings to soil (SunGro Horticulture, Agawam, MA) and grew all plants in growth chambers in 20°C, short-day (10h photoperiod) conditions with 180-190 uM light intensity and 60% RH. We bottom-watered with deionized water every two days for two weeks, and at week 3 watered every two days with added nutrient solution (0.5% N-P-K fertilizer in a 2-1- 2 ratio; Grow More 4-18-38). The plants were used for detached leaf assays 6 weeks after transferring seedlings to soil.

We utilized a previously described collection of B. cinerea isolates that were collected as single spores collections from natural infections of fruit and vegetable tissues collected in California and internationally (Atwell 2015). We maintained B. cinerea isolates as conidial suspensions in 30% glycerol for long term storage at -80°C. For regrowth, we diluted spore solutions to 10% concentration in filter-sterilized 50% grape juice, and then inoculated onto 39g/L potato dextrose agar (PDA) media. We grew isolates at 25°C in 12h light, and propagated every 2 weeks.

To study the effect of genetic variation in host and pathogen on lesion formation, we infected detached leaves of 12 diverse tomato varieties with the above 91 B. cinerea isolates. We used a randomized complete block design for a total of 6 replicates across 2 experiments. In each experiment, this included a total of 10 plants per genotype randomized in 12 flats in 3 growth chambers. Each growth chamber corresponded with a replicate of the detached leaf assay, such that growth chamber and replicate shared the same environmental block. At 6 weeks of age, we selected 5 leaves per plant (expanded leaves from second true leaf or older), and 2 leaflet pairs per leaf. We randomized the order of leaves from each plant, and the leaflets were placed on 1% phytoagar in planting flats, with humidity domes. Spores were collected from mature B. cinerea cultures grown on canned peach plates, and diluted to 10 spores/ µL in filter-sterilized 50% organic grape juice. 4µl droplets of the diluted spore suspensions were placed onto the detached leaflets at room temperature. Mock-inoculated control leaves were treated with 4µL of 50% organic grape juice without spores. Digital photos were taken of all leaflets at 24, 48, and 72 hours post inoculation and automated image analysis was used to measure lesion size.

Lesion area was digitally measured using the EBImage and CRImage packages {Pau 2010; Failmezger 2010} in the R statistical environment {R Development Core Team and Team 2009}. Leaflets were identified as objects with green hue, and lesions were identified as low-saturation objects within leaves. Images masks were generated for both the leaf and lesion, then manually refined by a technician to ensure accurate object calling. The area of these leaves and lesions were then automatically measured as pixels per lesion and converted to area using a 1 cm reference within each image.

**Soybean Methods (Glycine max)**

**Brassica rapa Methods**

12 *Brassica rapa* genotypes were kindly provided by Dr. Chris Pires at University of Missouri. These include 6 domesticated lines as well as 6 feral lines. Seeds were directly sowed to standard potting soil (Sunshine mix #1, Sun Gro Horticulture) and all plants were grown in a walk-in growth chamber in 20°C, 16hr photoperiod conditions with 100-120 mE light intensity. We bottom-watered them with dl H2O for one week and at week 2 watered every two days with added nutrient solution (0.5% N-P-K fertilizer in a 2-1- 2 ratio; Grow More 4-18-38). Plants were used for detached leaf assays 3.5 weeks after sowing.

**Sunflower Methods (Helianthus annuus)**

12 sunflower genotypes were kindly provided by Laura Marek in Northern Central Regional Plant Introduction Station. These include 6 domesticated lines as well as 6 wild ones. To promote the seed germination, we followed C.C. Jan’s protocol (ARS-USDA, Fargo, personal communication). Seeds were surface sterilized in 30% bleach for 12 mins, followed by rinsing with sterilized distilled water, and then soaked in sterilized water for 3 hrs. ¼ of the seeds were cut off from the cotyledon end, then placed in 100 mg/L GA3 for 1 hr, followed by rinsing several times with sterilized distilled water. After that, seeds were put in covered sterilized Petri dishes with wet sterilized germination disks at 4°C for 2 wks, then sowed to standard potting soil (Sunshine mix #1, Sun Gro Horticulture) and all plants were grown in a walk-in growth chamber in 20°C, 16hr photoperiod conditions with 100-120 mE light intensity. We bottom-watered them with dl H2O for one week and at week 2 watered every two days with added nutrient solution (0.5% N-P-K fertilizer in a 2-1- 2 ratio; Grow More 4-18-38). Plants were used for detached leaf assays 4 weeks after sowing.

**Cichorium endivia Methods**

12 *Chicorium endivia* genotypes were kindly provided by Kathleen Reitsma in Northern Central Regional Plant Introduction Station. These include 6 domesticated lines as well as 6 landraces. Seeds were directly sowed to standard potting soil (Sunshine mix #1, Sun Gro Horticulture) and all plants were grown in a walk-in growth chamber in 20°C, 16hr photoperiod conditions with 100-120 mE light intensity. We bottom-watered them with dl H2O for one week and at week 2 watered every two days with added nutrient solution (0.5% N-P-K fertilizer in a 2-1- 2 ratio; Grow More 4-18-38). Plants were used for detached leaf assays 4 weeks after sowing.

**Cichorium intybus Methods**

12 *Chicorium intybus* genotypes were kindly provided by Kathleen Reitsma in Northern Central Regional Plant Introduction Station. These include 6 domesticated lines as well as 6 wild ones. Seeds were directly sowed to standard potting soil (Sunshine mix #1, Sun Gro Horticulture) and all plants were grown in a walk-in growth chamber in 20°C, 16hr photoperiod conditions with 100-120 mE light intensity. We bottom-watered them with dl H2O for one week and at week 2 watered every two days with added nutrient solution (0.5% N-P-K fertilizer in a 2-1- 2 ratio; Grow More 4-18-38). Plants were used for detached leaf assays 4 weeks after sowing.

**Soybean genetic resources**

We obtained seeds for 12 soybean genotypes selected from the soyNAM Project. These include a diverse sample of six landrace genotypes and six modern genotypes of *Glycine max* (Table1). All genotypes were planted in greenhouse trays in a completely randomized block design under controlled conditions at UC Davis. Plants were grown under 16 hours of light per day, day/night temperatures at 25°C/18°C in 4” pots filled with standard potting soil (Sunshine mix #1, Sun Gro Horticulture). Plants were watered regularly and staked upright. Starting at 14 days post germination, the plants were watered every two days with added nutrient solution (0.5% N-P-K fertilizer in a 2-1- 2 ratio; Grow More 4-18-38). Plants were ready for the detached leaf virulence assays 4 weeks after sowing, where full grown leaves were used.

To measure lesion formation, we infected 12 diverse soybean varieties with 96 Botrytis isolates. We used a randomized block design with three independent biological replicates of each plant genotype by Botrytis isolate per experiment. The whole experiment was repeated twice with independent randomization between experiments leading to six measurements per soybean genotype x *B. cinerea* isolate for a total of ~6,900 lesion measurements. We randomly sampled 4 adult leaves per plant and each leaflet was used for inoculation of 2 B. cinerea isolate. For the statistical model, we kept track of the plant source for each leaflet. Leaflets were placed on 1% phytoagar flats with humidity domes on top.

Spores were collected from mature (2 weeks old) Botrytis cultures, and diluted to 10 spores/ µl in 50% filter-sterilized grape juice. 4 µl droplets of spore suspensions were inoculated onto detached leaflets at room temperature with 24h light. Control leaves were mock-inoculated with 4 µl of grape juice without spores. All leaflets infections were photographed at 24, 48, and 72 hours post inoculation for downstream image analysis.

We measured lesion areas using the EBImage and CRImage packages (Pau et al., 2010; Failmezger et al., 2010) in the R statistical environment (R Development Core Team, 2009). Leaflets were identified as objects with green hue, and lesions were identified as low-saturation objects within the leaflet. Images masks were generated for both the leaflet and lesion and manually refined by a technician to ensure proper object calling. The area of the leaflets and lesions were then automatically measured as pixels per lesion and converted to absolute area using a 1 cm control object within each image.