Guidelines for Growing and Reproducing S. ochranthum and S. juglandifolium
C.M. Rick Tomato Genetics Resource Center

1. **Seed germination.** Sow in mid- to late summer for flowering under short days (<12 hours) in fall through spring. Soak seeds in half strength household bleach (2.75% hypochlorite) for 1 hour. Rinse with sterile water. Optional: cut through the seed coat near the radicle end with a scalpel, or remove the seed coat entirely, to facilitate radicle emergence. Plate seeds on 1/2X MS media without sucrose (A). Germinate at ca. 25C under lights. Transplant seedlings to soil in seedling trays as soon as cotyledons have opened.

2. **Plant growth.** Once seedlings have several true leaves and are growing rapidly, transplant to pots, 3 plants per ½ gal pot (ca. 1.5 L volume). (See separate guidelines for the soil mix.) Crowding the plants in a small pot will help control vegetative growth (C). Grow plants in full sun at ca. 18-25C day/12-15C night temperatures. To initiate flowering, plants should receive no more than 12 hours of light per day.

3. **Horticultural tips.** Grow plants on a low bench or at ground level to allow for sufficient stem growth. Tie stems to tall stakes or to vertical wire/twine lines to allow plants to climb and to create filtered light below. Prune off excess side shoots, leaving just the main stem. Secure the pots to the bench with screws or wire to prevent them from falling over. Prune off excess stem growth until flowering is initiated. (Always bleach pruning shears with 10% bleach for 10 sec.s).

4. **Irrigation and fertilization.** After plants are large enough to dry the pots each day, place on drip irrigation and water frequently enough to keep soil wet and prevent wilting (twice daily for 10 mins per cycle works well for us). Fertilize weekly through the drip system with a dilute fertilizer (see guidelines for fertilizer). Avoid excessive fertilizing, which will promote vegetative over reproductive growth.

5. **Pollinations.** Once well established, these species flower best under short days in fall through spring. Both are self-incompatible and must be cross pollinated to produce seed. Collect pollen from all plants in the population using a VegiBee (B). Mix pollen, then apply to all open flowers. Repeat at least twice a week while flowering lasts in order to represent all plants. These species produce sympodia with 15 or more leaf nodes between inflorescences, so it is rare that all plants in a group with flower at the same time. Thus the need for repeated pollinations spread over weeks. Each inflorescence is highly branched, and continues producing flowers over weeks.

6. **Seed extraction and cleaning.** Harvest fruit when they have turned from dark green (D) to yellowish green, and have started to soften. (They never truly soften like a tomato, but they will become noticeably less firm, and eventually will start to wrinkle when they are ready). If you’re not sure, leave them on the plant. It can take up to 12 months for fruit and seed to mature. When the fruit are ready, cut them in half (radially) and squeeze out the juice and seeds into a jar. Scoop out any remaining seed with a grapefruit spoon, but avoid transferring any wall (septa) or pericarp tissue (these won't soften during fermentation). Don't add any
extra water. Cover jar and ferment for 2-3 days or until the gel around seeds has been digested. Clean seeds by rinsing in a pan with water, then decanting the fruit pulp. Rinse seeds in a strainer, then treat with acid and/or bleach, rinse, then dry on paper (F).