Tomatillo (*Physalis philadelphica*)

**Botanical classifications, Origins, Uses**

Tomatillos (also referred to as “miltomate” in Mexico) are in the *Physalis* genus and Solanaceae plant family, related to crops such as tomato, potato, eggplant, ground cherry and pepper. Native to Mexico and Central America, they have been cultivated since the pre-Columbian era and are a staple in Mexican and Guatemalan cuisines. Tomatillo and its relatives grow throughout North and South America.

*Fruit*

Fruits are enclosed in a husk, or calyx. This husk must be removed before consumption.

**Variety Selection**

While replicated field trials are still necessary, preliminary data from 15 varieties of tomatillo grown in Tompkins County, NY in 2019 show considerable variation in yield, fruit color, sugar content and susceptibility to pests.

Of the commercial varieties that were screened, ‘Cisneros,’ and “Purple Tomatillo’ were susceptible to insect pests, while the cultivars ‘de Milpa’ and ‘Tarahumara’ received relatively little pest damage. ‘Cisneros,’ ‘Super Verde,’ ‘de Milpa’ and ‘Siquieros’ yielded highest.

**Production**

**Soil and climate:**

Tomatillos are competitive growers in the Northeast US that can thrive even in poor quality, low nutrient soils, though trials show they are more productive and vigorous in a well-drained loam amended with nutrients; those with a balanced ratio of NPK (10:10:10) are best. Tomatillos are adapted to arid regions, so therefore don’t handle excessive soil moisture very well.

Tomatillos will grow in the northeast US, but as they are from a warm climate, prefer warmer, full-sun conditions, with optimum growth at 25-32° C (77-89° F).

Tomatillos are self-incompatible, meaning they need cross-pollination (usually by an insect) to another individual to set fruit.

**Growing timeline:**

- **mid-March:** sow seeds
- **late May:** harden off
- **June 1:** transplant
- **June 1-July 1:** scout Lema
- **late July - October:** harvest
Germination:
Tomatillos typically have relatively no-fuss germination requirements. Sow seeds ¼” deep in potting soil. Germination typically takes 7-14 days.

Trellising:
Recommended for ease of harvest and fruit quality.

Harvesting
Fruits can be harvested when the calyx is mostly filled out by the fruit, for a tart product. For a sweeter product, harvest fruits once they have completely filled out the calyx, and it has started to brown and become papery.

Insect Pests:

*Lema trivittata* (pictured above) is a beetle that causes chewing damage on the leaves of tomatillo and related species. It is ubiquitous in the northeast US and can do extensive early season damage, especially if transplants are not large.

*Management:* Non-pesticidal methods of controlling this pest include removing eggs and larvae from foliage. Larvae typically feed in groups and are relatively easy to spot. There is no current research on efficacy of common insecticides. Pyrethrin may be an effective method of chemical control of this pest.
Heliothis subflexa (pictured above) is a moth that infests the fruits of tomatillo, rendering it unmarketable, because it burrows into and consumes the fruit from the inside out.

Management: In Mexico, farmers use broad spectrum pesticides to control this pest, but there are not pesticides currently labeled for use in NYS. Pyrethrin or azadirachtin may be effective, but to date there is not data available on efficacy of different pesticides. It is not effective to scout for eggs or release parasitoids because this pest effectively escapes natural enemies, and eggs are very difficult to find. There has been some work looking into pheromone traps as a way to detect early infestation of this pest. Additionally, some varieties tomatillo are reported to vary in resistance to this herbivore and future research will identify

Symmetrischema lavernella (pictured above) is another moth that infests the fruit of wild Physalis species, in a similar fashion to the Subflexa straw moth. To date, it has not been reported in tomatillo except from 2019 field trials in NYS. If this pest is present at a site, it may infest tomatillos depending on whether wild Physalis co-occurs at the site, and the moth’s preference for wild versus cultivated plants. Very little is known about control of this pest.
Flea beetles

**Disease:**
While generally resistant, tomato yellow leaf curl (vectored by whiteflies) and turnip mosaic virus (vectored by green peach aphids) have been documented in tomatillo production in Mexico, Guatemala and California.

**Yield:** Depends on the variety, but a healthy plant can yield 10-15 pounds.