Chrysodeixis chalcites
Golden Twin Spot Moth

Identification Aid

Forewing:
- ground color golden-orange to bronze-brown, slightly speckled with gray brown (one form very golden)
- terminal line pale brown on anterior half
- with a small black spot near margin of wing on vein M2 (sometimes rubbed off), on the fringe
- and with a silver or white stigma usually consisting of two similar oval spots (hence its common name)
- ~17mm in length

Hind wing:
- ground color brown-gray, darker toward margin, with dark gray veins and a pale-tan short fringe

Abdomen:
- males with tufts of yellowish beige long scales on sides of abdomen, and black scales at apex ventrally

Chrysodeixis chalcites (Esper) (Lepidoptera: Noctuidae: Plusiinae) has a limited distribution in Canada. It is externally identical to Chrysodeixis eriosoma (Doubleday), which has not been found in North America. Because C. chalcites is very similar to several North American Plusiinae, especially Chrysodeixis includens (Walker), the soybean looper, dissection of genitalia and DNA-barcoding is necessary for final species determination.

This screening aid was produced by Julieta Brambila (USDA/APHIS/PPQ) and Steve Passoa (USDA/APHI/PPQ). Wing characters for C. chalcites were obtained from Pacific Northwest Moths at http://pnwmoths.biol.wwu.edu. Genitalic characters are based on the work by S. Passoa (1995). The spread moth specimen of C. chalcites was provided by Marja van der Straten from Plant Protection Service, Netherlands. The resting pose image of the golden form of C. chalcites was used with permission from Buggwood.org, taken by Paolo Mazzei from Italy.
Chrysodeixis chalcites (Esper) can be distinguished from *C. includens*, the native plusiine that most closely resembles *C. chalcites*, by several external and internal characters of the abdomen. Male *C. chalcites* have tufts of pale beige long scales on the sides of the abdomen and black long scales (a) on the apex, ventrally.

The genitalia are characterized by valva (b) elongate and wider at base than towards the apex, with a tight group of setae (c) at the apical margin, and a broad tegumen (d). The saccus is elongate and V-shaped (e).

Genitalia and abdominal segment 8, ventral side up, with two tufts of long black scales.
Chrysodeixis chalcites
Golden Twin Spot Moth

Black elongate scales from male abdominal segment 8.
Sclerites from modified abdominal segment 8, with black scales removed.

Images by J. Brambila
The aedeagus of *Chrysodeixis chalcites* has a bulbous base (a) and a vesica with several apical cornuti (b) and an elongate basal cornutus (c).
The soybean looper, *Chrysodeixis includens* (Walker), is a common North American pest, especially in the eastern U.S. Its forewing markings are extremely similar to the markings of *C. chalcites* and are variable (a). Male soybean loopers differ externally from male *C. chalcites* by the lack of tufts of scales on the sides and apex of the abdomen. The male genitalia are very useful for final identification. The most distinguishing genitalic characters are the extremely long and pointed saccus (b), the very long and thin clasper (c), and the costal projection (d) (variable in shape) near the base of the valva. The aedeagus is narrow (e) after the bulbous base and the vesica has a hooked basal cornutus.
Another commonly collected plusiine is *Trichoplusia ni* (Hübner), the cabbage looper. Because the wing coloration and the shape of the stigma (a) are variable, it is essential that genitalia are examined for the identification of this species. The main genitalic characters to notice are the large and recurved clasper on the center of the valva (b), the elongate V-shaped saccus (c), and the elongate apical cornutus on the vesica (d).