

MORPHOLOGICAL GUIDE TO KNOWN SPECIES OF *DIATRAEA* INTERCEPTED AT U.S. PORTS OF ENTRY FROM MEXICO

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The below key emphasizes well known species intercepted from corn and sugarcane in Mexico. It assumes more a specific origin is not available.

Separation of *D. lineolata* from *D. grandiosella* and *D. considerata* from *D. magnifactella* is inconsistent. Some specimens fit the below diagnoses, others are inconclusive. That is the state of the art for now. Separation of *D. lineolata* from *D. saccharalis* is more accurate. A series of preserved larvae of both species were reared from eggs laid by female moths collected in Honduras and confined in the laboratory (see Passoa 1985). They are easily separated by the paraproctal setae, but color and the SD1 pinaculum shape and size were added as backup characters. As with other difficult groups, pick the couplet that best fits the unknown, even if the fit is not perfect. If too many characters do not match, stop at genus.

Some characters were taken from Weisman (1974), Passoa (1985), Stehr (1987), and Riley and Solis (2005). The position of SD1 and SD2 on A3-6 is not emphasized because identifiers report the character is often inconclusive and it is not obvious in diapausing forms. The SD2 seta in *D. magnifactella* is very tiny but usually visible in below the SD1 pinaculum. The same seta in *D. considerata* is more difficult to find and is anterior of the middle of the SD1 pinaculum of A8. Markings refer to the pigmented stripes, not the pinacula.

Some comments on identification of common *Diatraea* pupae from Mexico are possible. The two corn feeders, *D. saccharalis* and *D. lineolata*, can be separated by the pattern of spines on the terminal abdominal segments (Riley and Solis 2005). Another way to identify *D. saccharalis* is by the relatively smooth pointed tubercles on the vertex. This was noticed by Hensley (1960:42) who stated that the vertex of *D. saccharalis* was different from the more rounded and roughed tubercles present in both *D. grandiosella* and *D. crambidoides*. These pointed tubercles also separated *D. saccharalis* from *D. lineolata* in Honduras (Passoa 1985: fig. 50, 342). Six pest species of sugarcane borers in Colombia (*D. indigenella* and *D. tabernella*) (Vargas et al. 2013) and Venezuela (*D. centrella*, *D. impersonatella*, *D. buskella*, and *D. rosa*) (Linares and Bastidas 1996: 41) also have round tubercles on the vertex, again confirming the distinctive nature of *D. saccharalis*.

The situation is similar in Mexican sugarcane. The tubercles on the vertex of both *D. considerata* and *D. grandiosella* are rounded, thus *D. saccharalis* is easy to recognize on this host as well. Too few individuals of *D. considerata* and *D. grandiosella* were examined to identify these taxa with confidence; differences, if any, are likely to be subtle. The pupae of *D. magnifactella* and several other rarer species of *Diatraea* from Mexico are unknown. The bottom line is that *D. saccharalis* and *D. lineolata* can be separated from interceptions on corn whereas only *D. saccharalis* can be recognized in sugarcane. This requires the assumption that other species of *Diatraea* in Mexico are unlikely in the pathway.

The following key to larvae is based on PestID data from 2013. In the future, rarer species may be discovered or common species may become less important. Consult the "Guide to species of *Diatraea* intercepted or potentially encountered at U.S. ports of entry" if the interception is from Latin America or is from a specific state in Mexico.

1. From corn.....	2
1'. From sugarcane	4
2. Head tends to be reddish brown, the prothoracic shield dark brown, rarely light or honey colored; SD1 on A3-6 does not extend far beyond the top of the spiracle; paraproctal setae equal in length to SV1 on A10; 25 mm long or less.....	<i>Diatraea saccharalis</i>
2'. Head and prothoracic shield tend to be honey colored (red or dark brown in early instars); SD1 on A3-6 can extend to almost the middle of the spiracle; paraproctal setae never more than half as long as SV1 on A10; can be 30-40 mm long	3
3. SS2 seta closer to stemma 6 than stemma 5; early instars (10-15 mm long) have a light honey colored prothoracic shield.....	usually <i>D. grandiosella</i>
3'. SS2 closer to stemma 5 than stemma 6; early instars (10-15 mm long) have a dark brown prothoracic shield.....	usually <i>D. lineolata</i>
4. Frontal pores well below a line connecting the F1 setae; SD1 pinacula extends to middle of the spiracle on A3-6; paraproctal setae only half as long as SV1 on A9.....	<i>D. grandiosella</i>
4'. Frontal pores in line, with or only slightly below, the F1 setae; SD1 pinacula extends to the top of, or only slightly below, the spiracle on A3-6; paraproctal setae almost as long as SV1 on A9.....	5

5. Head reddish brown; markings, if present, tend to be subdorsal, dark purple to brown and longitudinal; body pinacula golden brown; D2 on A1-7 tend to be on oval to rectangular pinacula; anal shield usually pale*Diatraea saccharalis*
- 5'. Head honey colored; markings, if present, can be in the lateral region, and are light purple to pink and transverse; body pinacula dark, not golden brown; D2 on A1-7 tend to be on thin band like pinacula; anal shield often pigmented.....6
6. SD2 minute and below the middle of the SD1 pinaculum on A8.....*D. magnifactella*
- 6'. SD2 on A8 not visible, or somewhere in front of the middle of the SD1 pinaculum
.....*D. considerata*
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