

Ecology

Both species are frequent inhabitants of birds' nests, a probable natural habitat and source of infestation. These species often occur together.

Monitoring

No specific trapping systems appear to be available for these species.

Geographical distribution

Species	Pest status	USA & Canada	Central & South America	Europe & N.Asia	Mediterranean basin	Africa	S. & SE. Asia	Australia & Oceania
<i>Endrosis sarcitrella</i>	●	X	X*	X	X	X*	X*	X
<i>Hofmannophila pseudospretella</i>	●	X	X*	X	X*	X*	X	

Pest status: ● minor to ●●●● major pest
 X: recorded
 *: Temperate regions only

Both species are found in temperate regions, and both appear unable to breed in hot tropical climates.

References

Aitken (1984), Cox and Bell (1991), Ferguson (1987), Mound (1989), Solis (1999) and Weismann (1987).

Gelechiid moths

(Family: Gelechiidae)

<i>Sitotroga cerealella</i>	Angoumois grain moth
-----------------------------	----------------------

Summary

Feeding strategy	primary pest
Commodities attacked	grain
Distribution	warm temperate-tropical
Economic importance	high
Eggs	laid on grain
Larvae	immobile when mature, internal feeders
Adults	short lived, do not feed on commodity, fly readily

Introduction

Moths of this family have very long strongly curved labial palps. Larvae of this family are concealed feeders on dried and growing plant material in a wide range of environments. Only one species, *Sitotroga cerealella*, is an important pest of whole cereal grains.

Identification

S. cerealella is unlikely to be confused with other moths of stored produce on account of its general appearance, size, coloration when fresh, and lifestyle (Figures 188–191).

Sitotroga adults are smaller than other commonly encountered moth pests of stored products. When fresh, the wings are pale greyish brown, 5–6 mm long (Figure 188). A single small black spot is present in fresh specimens roughly central on the fore wing two-thirds from the base. Wings are heavily fringed with fine hairs. The front wing is tapered to apex and when unfurled the rear wing is shaped like old fashioned ‘fingerboard’ road sign. Labial palps are long and curled upwards (Figure 189).

Larvae are not usually seen as they live concealed inside grains (Figure 191). True legs are reduced in size and pro-legs on the abdomen are vestigial. As previously mentioned, larvae of *S. cerealella* can be confused with some beetle larvae. For a description of differences, see page 17.

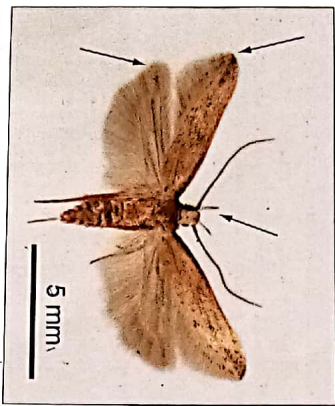


Figure 188 *Sitotroga cerealella*, adult, wings heavily fringed, fore wing tapered, tip of hind wing constricted, like old fashioned ‘fingerboard’ road sign

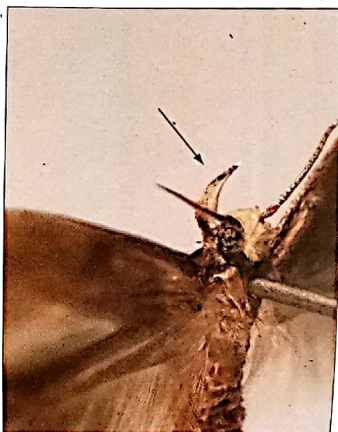


Figure 189 *Sitotroga cerealella*, adult, head showing labial palps long and strongly curved upwards



Figure 190 *Sitotroga cerealella* adult, live in wheat

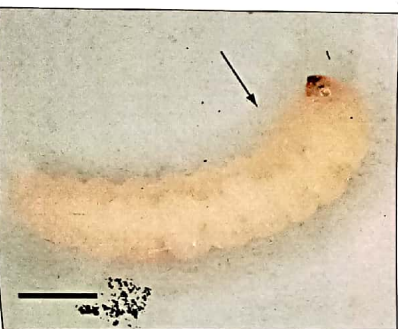


Figure 191 *Sitotroga cerealella* larva, effective absence of pro-legs on abdomen

Life cycle

Eggs are laid on the outside of grains in cracks and crevices, either singly or in groups and as they develop they become red in colour. Up to 150 eggs are laid by each female. Eggs hatch in four to six days under optimal conditions. Newly hatched larvae burrow into a grain inside which they remain until emergence as an adult. Larvae excavate a cavity inside the grain as they feed. Prior to pupation, larvae make an emergence hole which they cover with a thin, tough envelope of silk (‘emergence window’). After about seven days, adults emerge, escaping through the ‘window’. Adults are short lived, do not feed and are most active at dusk and during the night.

Physical limits and optimum rate of multiplication

Species	Conditions within which breeding takes place	Shortest development period, with optimum conditions	Maximum monthly rate of increase
<i>Sitotroga cerealella</i>	16–35°C, r.h. > 30%	30 days at 30°C, 75% r.h.	50

S. cerealella is cold hardy and can survive winter in unheated premises in temperate areas.

Economic importance

S. cerealella is a pest of whole cereal grain, especially of barley, maize, millet, rice, sorghum and wheat. Infestation often begins in the field as the grain matures, especially under tropical conditions. It is most serious a pest of bagged and traditionally stored produce and commodities such as maize and sorghum, which are often left in the field or in the open to dry. It is less serious as a pest of bulk-stored grain where infestations are usually restricted to surface layers.

Type of damage and symptoms

Feeding by larvae produces large cavities within the infested grain. When adults emerge the pupal case is often characteristically left sticking half out of a neat round emergence hole. Unlike other moths, *Sitotroga* does not bind grains etc. with silk. *Sitotroga* infestations produce a lot of heat and moisture in otherwise dry grain. This can encourage mould growth and attract other insect species.

Ecology

Infestations of *S. cerealella* frequently begin in the field before harvest. Large populations can build up if crop is left in the field to dry. Sorghum with its loose seed head is especially at risk from this pest. In heavy mixed populations, *S. cerealella* may eventually be suppressed by internal feeding beetles such as *Sitophilus* species and *Rhyzopertha dominica*.

Monitoring

Trap systems baited with a synthetic pheromone are commercially available for this species.

Geographical distribution

Species	Pest status	USA & Canada	Central & South America	Europe & N.Asia	Mediterranean basin	Africa	S. & SE. Asia	Australia & Oceania
<i>Sitotroga cerealella</i>	●●●	X	X	X	X	X	X	X

Pest status: ● minor to ●●● major pest
X: recorded