



Original thinking... applied

# Lepidoptera – Frequently encountered species

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## Spodoptera spp. (Noctuidae)

30 + species with 4 regulated species and 1 of current concern

Caterpillars all structurally the same, but vary in geographical distribution, and colour pattern

***Spodoptera litura*** – Taro caterpillar

EU - IA1, EPPO - A1

Asia, Pacific Islands, Oceania

***Spodoptera frugiperda*** – Fall armyworm

EU -IA1, EPPO - A1

Americas

Spread to Africa (2016) & India (2018),  
China (2019), Australia (2020).

Regularly intercepted on *Zea mays* from  
west Africa



***Spodoptera littoralis*** – Cotton leafworm

EPPO - A2

Africa, Middle East, Southern Europe to  
Northern Italy.

***Spodoptera eridania*** – Southern Armyworm

EU -1AI , EPPO –A1

Southern USA, Central and South America  
and the Caribbean, reported in West Africa 2016/17  
Yet to be intercepted

***Spodoptera onithogalli*** – Yellow-stripped armyworm

North America - an emerging threat?

Yet to be intercepted

# *Spodoptera litura* & *Spodoptera littoralis*

Geographical origin important but host less so

Both highly polyphagous on many plant families:  
ornamentals, fruit and vegetables.

*S. litura* the most regularly found 183 interceptions to date:  
*S. littoralis* - 97 interceptions to date.

Caterpillars are variable and difficult to separate.

If the origin is unknown rearing or DNA sequencing may be needed.

Eggs 0.6 mm in diameter – Characteristically laid in clusters on the undersides of leaves – covered in brown hair shed from the female moth.



# *Spodoptera litura* & *Spodoptera littoralis*

## Caterpillars

- Both species almost identical in early instars
  - Colouration very variable
- 5 pairs prolegs
- 35 – 45 mm max length
- Tapered towards a small head
- Smooth integument (skin)
- Dark spots above spiracles
  - Large spot on A1 & A8
  - Smaller on other segments
- Paired yellow/white dots
- Yellow/orange lines



# Colour and structural variation in *Spodoptera* caterpillar instars -

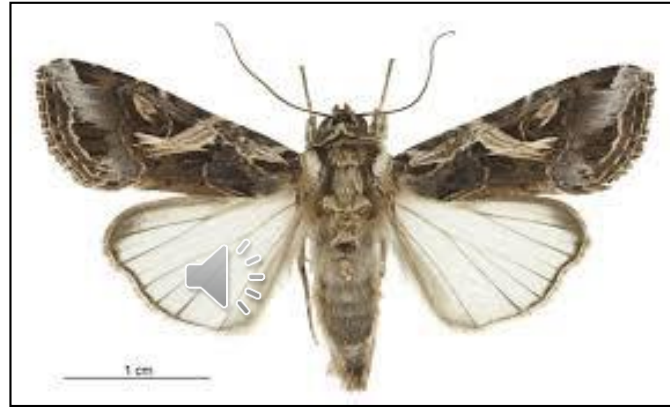


# *Spodoptera litura* & *Spodoptera littoralis*

## Adults

- Very unlikely to encounter adults
- Wingspan 30-38mm
- Two species visually indistinguishable – dissection required

*Spodoptera litura*



*Spodoptera littoralis*



# *Spodoptera frugiperda* – fall armyworm

Native to tropical and subtropical regions of the Americas

Highly polyphagous, causes damages on several crops, most significantly maize and other Poaceae, but has more than 350 known hosts in 26 other plant families.

Virtually indistinguishable from other *Spodoptera* spp. in the field!

Remarkably rapid spread around the World

2016 - Reported in Africa for first time (Benin, Nigeria, Sao Tomé and Príncipe and Togo)

2017 - Spread throughout Africa.

2018 recorded in India

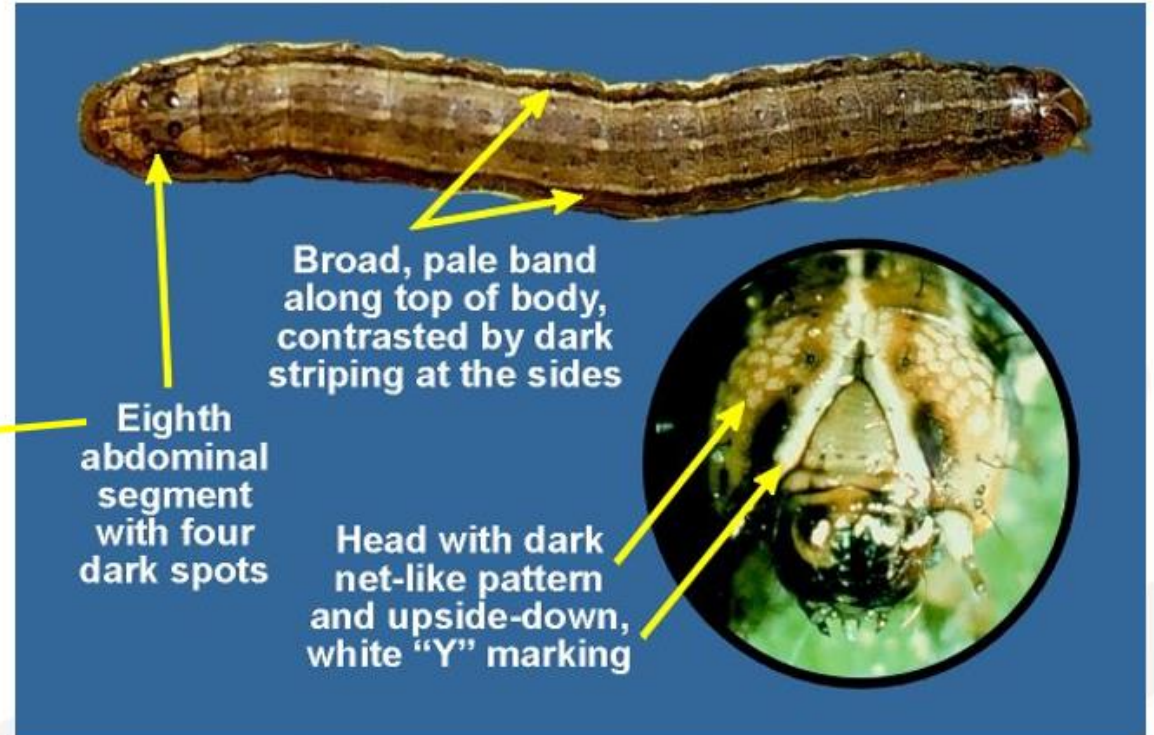
2019 recorded in China

2020 recorded in Australia & Papua New Guinea

UK interceptions increased from 2018 - mostly from Africa on *Zea mays*



# *Spodoptera frugiperda* – fall armyworm





# *Spodoptera frugiperda* - Damage and interceptions



## UK Interceptions to October 2020



- Origin: Brazil (1), Dominican Republic (2), Kenya (3), Mexico (4), **Senegal** (28), Uganda (2) & USA =(1)
- Hosts: *Capsicum* (4), *Carica* (1), *Cucurbita* (1), *Momordica* (14), ***Zea mays*** (30)

All from the New World

Almost all from Africa

Year	1999	2007	2014	2018	2019	2020 (oct.)
	1	1	4	13	16	6



## *Thaumatotibia leucotreta* (Tortricidae)

– False Codling Moth (FCM) EPPO A2 and EU listed pest

One of 25 species in the genus Family: Tortricidae (leaf rollers – micro moths)

A significant pest of stone fruit, citrus and field crops in Sub-Saharan Africa

Internal fruit feeding larvae, yellowish white in colour turning pink in later instars

Larvae mine into produce just beneath the skin or bore into fruit causing damage and premature ripening.



Under the right conditions can breed all year round - 5-10 generations per year

Caterpillars regularly intercepted in Capsicum (Chillies) – Africa . Eggs attached to fruit also being detected and identified using molecular methods

Concern that if this species were into protected cultivation it would be a serious economic pest



Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020 (Sept)
	0	3	2	0	0	4	12	12	134	222	103	117	118	61	53

# False Codling Moth (FCM) – Detection and feeding damage

Eggs 0.9 mm in diameter



Up to 15mm long



Internal damage



Adult wing span 15 - 20mm

