Regulated pests commonly intercepted with imported cut flowers

Most frequent interceptions

- *Bemisia tabaci*
- *Liriomyza*
- *Thrips*
- *Spodoptera*

The most frequently found regulated pests on cut flowers entering the UK are the *tabaci*, and species of *Liriomyza* flies in the family Agromyzidae

Less frequently found are *Thrips* species, and caterpillars of the genera *Helicoverpa*

The commodity most frequently rejected for the presence of regulated pests is on which we frequently find *Liriomyza* on consignments from South America. regularly but less frequently on a range of flowers, including roses India. *Thrips* and occasionally, for instance on chrysanthemum from S. America (*Spodoptera*), and Far East.

Original thinking... applied

Liriomyza flies

Agromyzidae- Leaf-miner flies

Liriomyza huidobrensis- South American leaf miner or serpentine leaf miner

- Leaf miners on a diversity of plant species
- May also mine stems and bore (rare)
- Sometimes host specific
- Shape of the mine is sometimes distinct
- Many are agricultural pests

Agromyzidae - *Liriomyza* species

- *Liriomyza* -one of the 31 genera in the family Agromyzidae
- 5 EU listed species out of 376 spp. worldwide (42 spp. in UK) last check
- Adults are all small flies 1.5-2.5 mm long with a distinctive yellow scutellum
- Life cycle: egg, 3 larval instars, pupa and adult
  - Adult females puncture leaves to feed or oviposit
  - Eggs are inserted just below the leaf surface
  - Larvae are leaf miners
  - Pupation occurs outside the host

Liriomyza spp. – economic damage

Adults puncture leaves to feed and to lay eggs

Larvae most damaging stage – leaf miners

- Premature leaf drop
- Delayed host development
- Yield reduction

Aesthetic damage – mines and punctures reduce plant quality and devalue plants

L. bryoniae

L. sativae

L. huidobrensis

L. trifolii

Liriomyza immature life stages

Liriomyza sativae

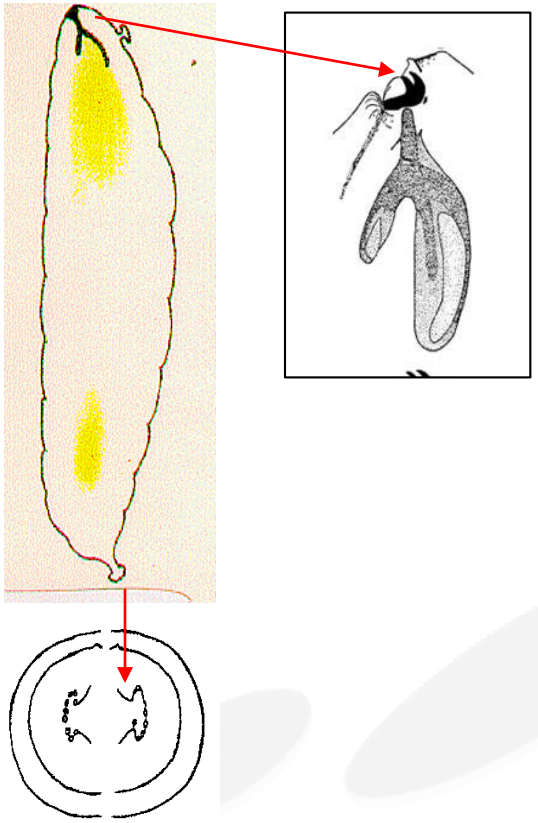
Liriomyza trifolii

1.0- 2.5 mm in length

Liriomyza huidobrensis pupae

L. bryoniae & L. huidobrensis - Larvae and pupae

- Off-white – last instar develops orange markings at the head
- Posterior spiracles elliptical with 7-12 pores (*bryoniae*), 6-9 pores (*huidobrensis*), 10-12 pores (*strigata*)
- Pupae gold-yellow to dark brown
- Pupates in soil and sometimes on lower leaf surfaces



L. sativae / L. trifolii - Larvae and pupae

- Uniformly pale yellow/orange becoming strongly yellow
- Posterior spiracles a three-pointed cone each point terminating in a single pore
- Pupae pale yellow–orange to golden brown
- Pupates in soil

Detection

Liriomyza bryoniae: hosts & interceptions

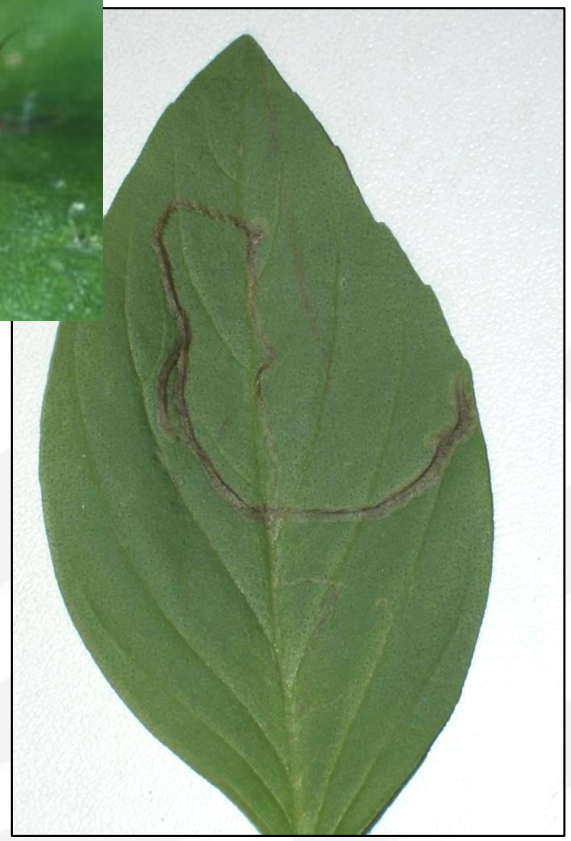
- Introduced to the UK a time ago
- Restricted to protected cultivation economic tomato, cucumber,
- Found in most of Ireland

Liriomyza huidobrensis: hosts & interceptions

- Originated in the New World; has now spread around the world (since the 1980s)
- Highly polyphagous pest of numerous ornamental & vegetable crops
- In Europe but not in the UK- Occasional outbreaks.
- Numerous interceptions (2348 interceptions 1996-2018), with most from NL, Kenya, Cyprus, Israel.

Liriomyza sativae: hosts & interceptions

- Originates from the New World, currently spreading around the world (particularly South East Asia & West Africa)
- Not in Europe, but has reached Israel
- Highly polyphagous pest; mainly on basil from Thailand, Vietnam, Malaysia, Israel, Jordan and Kenya, but also assorted leaves from West Africa -113 interceptions (1996-2018)



Liriomyza trifolii: hosts & interceptions

- Originates in the New World; has now spread around the world (since the 1970s)
- Highly polyphagous pest of numerous ornamental & vegetable crops
- In Europe but not the UK.
- Numerous interceptions – (364 interceptions (1996-2018).