Pest Fact Sheet:
Light Brown Apple Moth (*Epiphyas postvittana*)

Identification
Eggs from the apple moths are laid on upper surfaces of leaves in clumps of up to 80 eggs. They are small (less than 1mm), pale to begin with but progressively become yellow as they age. Just before hatching the dark head of the larvae become apparent. Larvae yellow/pale green and about 1mm long when emerging from eggs. They can reach up to 15mm long when mature. Larvae can have a central strip of darker green. Pupae are about 12 mm long. The adult moths are pale yellow to pale brown. The adult apple moths can be up to 10mm long with a wingspan of up to nearly 2.5 cm; the females are usually bigger than males. The lesser light brown apple moth is so named as it is slightly smaller than the light brown apple moth, but otherwise it is extremely difficult to distinguish between the two. Talk to your local diagnostic agency regarding identification if you are concerned.

Damage
Apple moth damage is a result of the larvae feeding on buds, fruit, flowers, and leaves. Damage to fruit usually occurs as surface feeding, causing irregular brown areas forming on the surface of the fruit. The larvae will enter the fruit occasionally to feed. In addition to this direct damage, apple moths are also linked with the spread of fungal infections such as botrytis. The webbing produced by the larvae in fruit bunches early during fruit development can lead to poor development, and the debris left within bunches increases the risk of fungal infection in bunches. The larvae will seek protection by spinning a webbed covering on the underside of leaves, or rolling a leaf closed altogether with webbing. This leaf rolling nature of the insect may also reduce leaf function.

Life cycle
Adults emerge through spring and into summer in consecutive generations. In Australia three generations have been noted under ideal conditions. The adult moths lay eggs on the upper sides of leaves, from which the larvae emerge after 1-3 weeks. Larvae search for protected areas to mature and pupate. Initially the undersides of leaves close to midribs are preferred sites and the larvae create a silken cocoon. As larvae mature the silken webbing may envelop whole leaves, or they may enter fruit bunches. This larval period lasts from 3-6 weeks, and then pupation occurs in the larval 'nests'. The moth overwinters as larvae (usually those from eggs late in the growing season or in Autumn) in plant debris or host plants such as weeds. Warmer weather then accelerates development, pupation occurs and the adult moths emerge and mate soon afterwards.

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Monitoring and control

Light brown apple moths have been noted in many regions of Australia, but prefer the cooler climates. Hot, dry climates can suppress moth numbers. Monitoring is required to meet export protocols and is undertaken using pheromone traps. Pheromone traps are used to determine the first flight of moths and to develop an action plan. Catch information from the traps will give an indication of where to increase the surveillance of leaf and fruit clusters for early-stage larvae.

Chemical control should be timed to match hatching of eggs. Flight dates and climate information can give you a good indication of when eggs will hatch. This can be calculated by degree days (130 GDD); optimum temperature for activity is between 7 and 30°C. Talk to your local agency for further information and also refer to the "Monitoring of pests and diseases for apple exports to China" resource.

Maintaining good orchard hygiene (keeping weeds down and removing loose bark and pruning waste) will reduce the number of overwintering sites. There are a number of parasitic insects of apple moths, so exercise caution when applying broad spectrum insecticides.

All information is sourced from:

• APAL Integrated Pest Management for Australian Apples & Pears 02/10 – 7252.

• CGA Cherry Export Manual and Biosecurity Management Programme 2014/15 – Version 2.