Elephant Weevil Borer

The blueberry industry has seen substantial growth over the past decade, evolving into a $422 million emerging market with expanding opportunities both domestically and internationally. Alongside this growth, however, the industry faces ongoing challenges from a range of pests that affect plant health, yield, and quality.

Amongst the pest challenges impacting ongoing blueberry production, the elephant weevil borer (*Orthorhinus cylindrirostris*) continues to cause significant damage to plant health, especially over vegetative growth. In addition to direct yield losses, larval feeding renders plants susceptible to breakage during harvest and shortens a plant's productive lifespan. There is also the added cost of replacing the collapsed plants. This pest appears sporadically and is often found in localised areas.

Habitat

Being native to Australia, it is established over much of Australia particularly through New South Wales, Queensland, Tasmania, South Australia and south-west Western Australia. It has a wider range of host crops including eucalypts, acacias, casuarinas, tea tree, native chestnuts, citrus, grapevines, apples, apricots, peaches, custard apple and blueberries.

Identification

The adult elephant weevil's body is densely covered with grey to black scales and are 8-20mm in length (Figure 1). The front legs are considerably longer than the other pairs. Adults are strong flyers and can travel reasonable distances. One of the distinguishing features of these beetles is their long snouts and the shape of the body that resembles a resting elephant. The larvae are soft, creamy-yellow, and legless, measuring around 20 mm in length. They curl into a C-shape when at rest. Pupae begin as transparent but gradually darken to brown as they mature.

Lifecycle

Adults often appear in spring, with females laying eggs on the ground and underneath the tree bark from early spring to the end of summer. Once hatched, the legless, fleshy, creamy–yellow larvae bore tunnels through the trunk, crown and roots of the plant. As a result of severe wood boring, tunnels are filled up with fine fibrous saw dust type frass. The larval feeding can continue up to 10 months and fully grown larvae undergo pupation within the trunk at the end of the tunnels. After 2 months of pupation adult weevil emerge by making a round exit hole to the trunk. (Figure 2)

Damage

While adult elephant weevil can attack trees at any stages, damage in older blueberry trees is more prevalent. The adult weevil can damage plants by ring barking, eating leaves and stems, and scalloping the foliage. However, the larval stage causes the most significant economic damage. The larvae are wood borers, tunnelling in the trunk and roots. Adult exit holes are 5–6 mm in diameter, located mostly in the lower trunk and rootstock.

Poor tree health along with extreme weather events such as prolonged wet weather or dry condition can increase the plant susceptibility to elephant weevil attack. Since the floods in northern NSW, increased elephant weevil borer activity has been reported in some locations.

Figure 1. Adult elephant weevil borers have a distinctive long snout
Photo credit: (L) Lesley Ingram Bugwood.org (R) Pest and Diseases Image Library , Bugwood.org

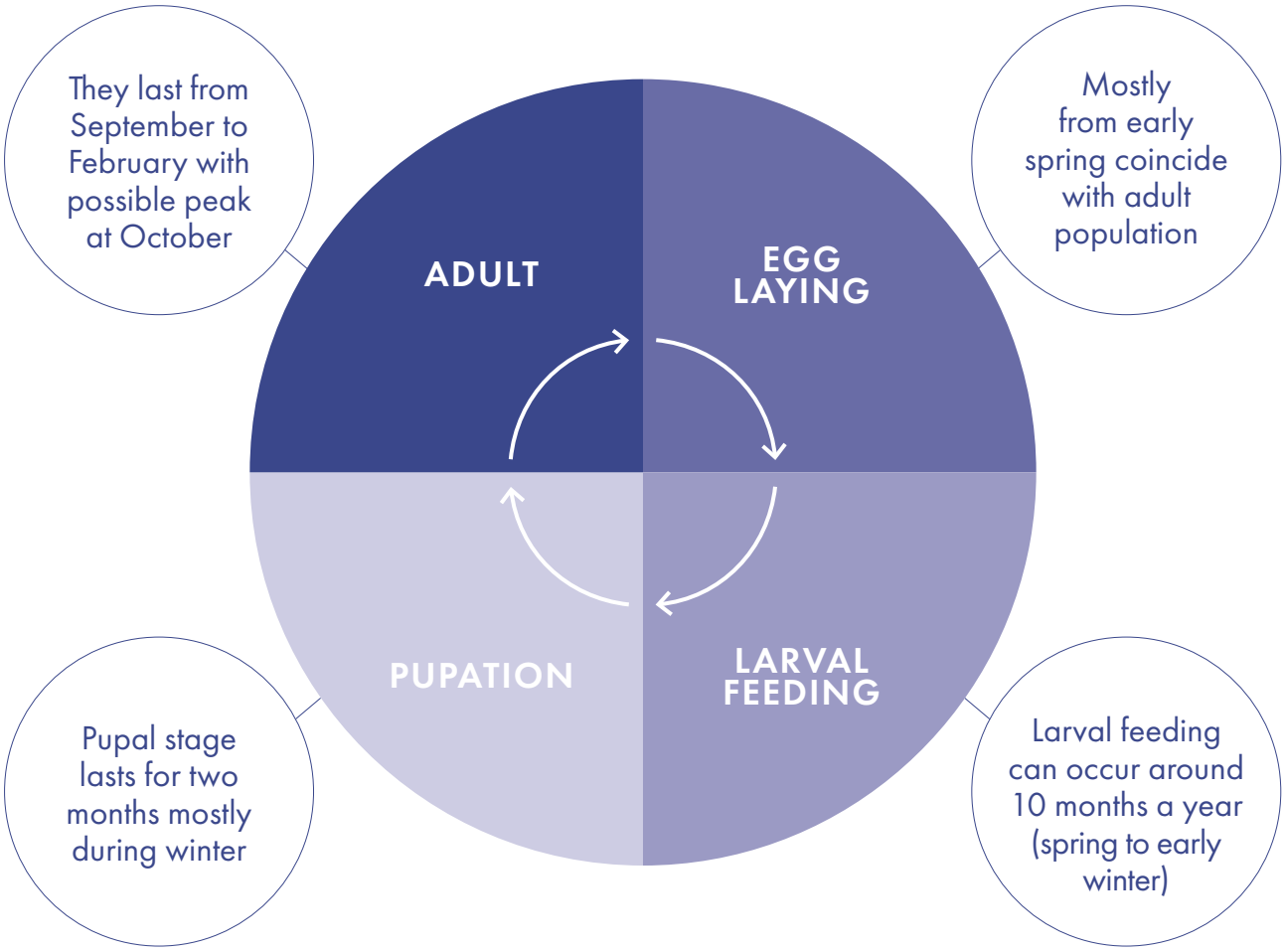

Figure 2. Annual life stages of elephant weevil on blueberry

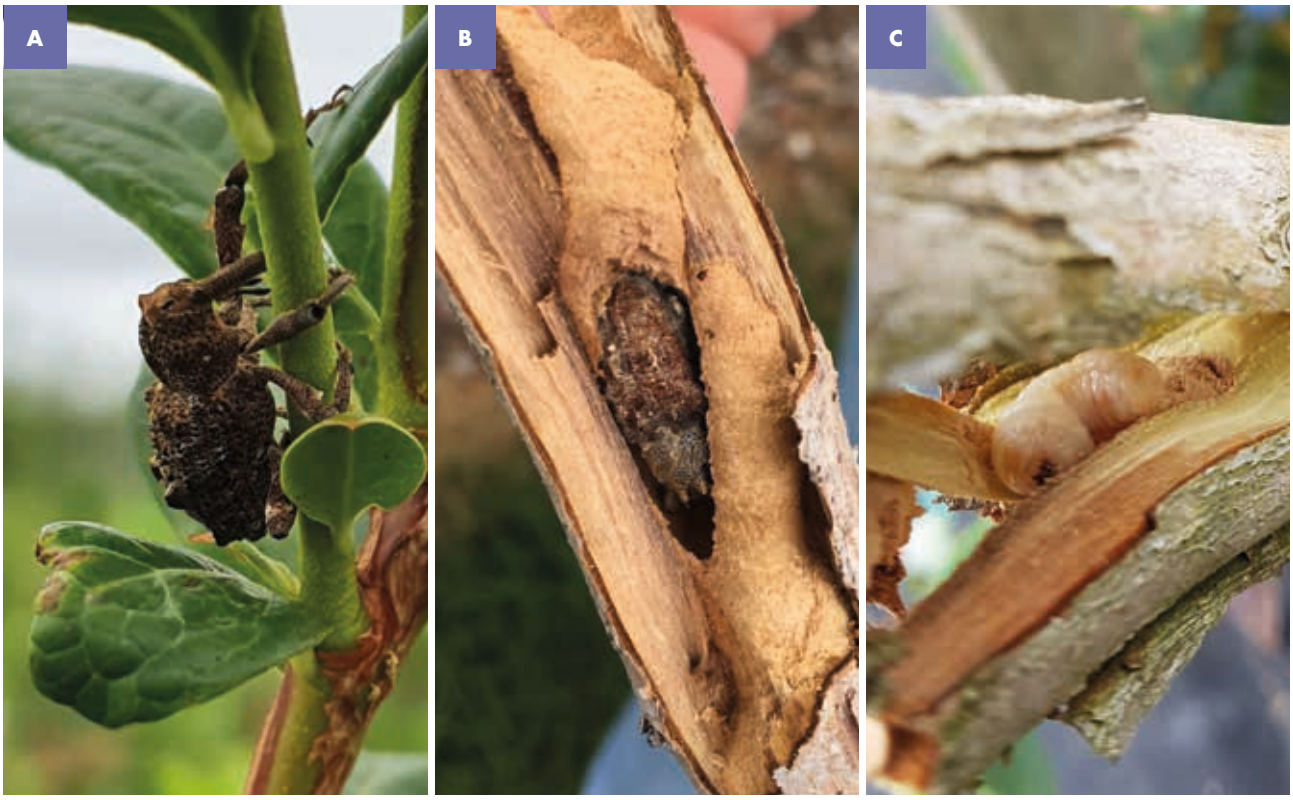

Figure 3. (A, B) Adult elephant weevil feeding on young twigs and in stem. (C) Larvae tunnelling into blueberry trunk.
Photo credits: Costa, Gaius Leong NSW DPIRD

Management

Currently, there are no efficient semiochemical based commercial tools for monitoring adult beetles. Growers rely on intermittent scouting from spring onwards for early detection of adult exit holes in the lower trunk and branches as well as freshly chewed bark on twigs. Future research targeted to develop mass trapping systems will certainly assist growers in managing adult weevils.

Cultural approaches such as fertilisation and irrigation can reduce the susceptibility to weevil attack by maintaining optimum tree health. Additionally, early removal of infested plant materials may reduce the build-up of adult populations. There is limited knowledge on the potential of natural enemies in managing this pest. The potential of entomopathogenic microbes to manage adult weevil needs to be explored further.

Spot application of synthetic insecticides on the upper branches of recently pruned plants where adults are feeding remains the primary control approach for this pest.

The Australian Pesticides and Veterinary Medicines Authority (APVMA) has issued permits for Bifenthrin:

Permit PER84972, bifenthrin is approved for use against elephant weevil borer in blueberries and Indoxacarb: Permit PER 13289 allows the use of indoxacarb for controlling this pest in blueberries.

Always check that a permit is current at https://portal.apvma.gov.au/ before use.

Overall, further research to develop effective monitoring tools and sustainable management practises (i.e., mass trapping, biological control) are advocated to improve the management strategies for elephant weevil in berries.

NSW GOVERNMENT

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