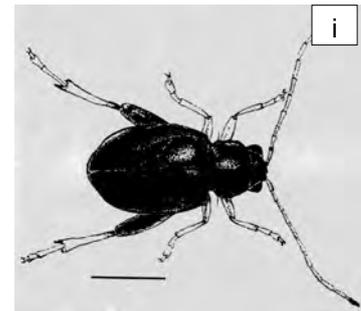


Longitarsus bethae Savini & Escalona 2005 (Chrysomelidae: Alticinae), originally from Mexico, was approved for release in South Africa in 2007. Despite its slow dispersal rate, which has not exceeded a 1-km radius during the past 5 years, the flea beetle continues to persist at some sites in KZN and Mpumalanga provinces. The beetle is highly damaging at these release sites, causing visibly stunted growth of plants. Mass-rearing and distribution of the beetle is expected to enhance biocontrol of lantana in South Africa.



DESCRIPTION

Adults of the root-feeding flea beetle are shiny, brown to dark brown beetles with conspicuously enlarged hind legs. Their size ranges in length from 1.5 to 1.9 mm (i), with males being slightly smaller than females.

LIFE CYCLE

Adult beetles lay their eggs singly or in small clusters into cracks in the surface of the soil within 5-10 cm of the base of the stem of a plant. Eggs are yellowish to light brown in colour, slightly elongated and about 0.3 mm long. Eggs hatch after 11-14 days at room temperature (25°C). The youngest larvae burrow into rootlets and feed internally, producing elongate tunnels. Older larvae often feed externally and remove the outer cortex of the rootlets or secondary roots. The fully-grown larvae move upwards and pupate within 3-5 cm of the soil surface. The adult to adult generation time ranges from 52 to 60 days.



FEEDING DAMAGE

The adults perforate the epidermis on either the upper or lower surface of the leaf and feed on the green mesophyll tissue, producing a characteristic, irregular smattering of pits, which are small, rough-edged, and of various sizes (iii). Occasionally, the adults also feed on the flower petals. The larvae cause great damage to the root system, which significantly reduces the plant's growth rate. This could also cause the plant to produce fewer flowers and seeds.

IMPACT ON LANTANA

If the root-feeding flea beetle occurs in large numbers, it significantly stunts the growth of lantana, resulting in fewer leaves and shorter, thinner stems. It was shown experimentally in field cages that feeding by consecutive generations of the root-feeding flea beetles damages the leaves and roots so severely that the plants produce significantly fewer flowers. Overall, the ability of the flea beetle to both directly suppress root growth and indirectly suppress leaf production, stem growth and flower production of lantana, makes it a valuable biocontrol agent that can significantly reduce the weed's invasiveness in South Africa.



environmental affairs

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