



Technical Update 43

Bean seed fly (*Delia platura*)

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Bean seed fly affects more than 40 different host plants and is an important pest of peas, maize, and beans. Hosts include Phaseolus beans, peas, broad beans, cucumber, melon, onion, pepper, potato, maize (alfalfa, cotton, strawberry, and tobacco are secondary hosts). The bean seed fly larva is a common pest found in most temperate countries affecting a wide range of large seeded plant hosts. In severe infestations plant loss at seedling stage may be high, often resulting in re-drilling and subsequent loss of production of high value vegetable crops at an early growth stage.

DESCRIPTION AND LIFE CYCLE

Adult flies are attracted to freshly disturbed soil containing debris from previous crops, high levels of organic matter such as farmyard manure, or weed debris. In contrast to initial concerns, it is reported that the adoption of conservation tillage does not increase bean



seed fly damage as there is minimal disturbance to soil. However live, green organic matter or animal manure incorporated into soils in the spring attracts egg-laying flies.



Eggs are laid on the soil surface and larvae hatch after a few days and feed on newly planted seeds or plant and crop debris. After 10-14 days, larvae pupate and emerge as a second generation of flies, which move to suitable feeding sites. There may be several overlapping generations per year, occurring from late spring until early autumn. There is evidence that the damage potential is reduced in no-tillage

systems and germinating seeds alone are not sufficient to attract large populations of flies.

SYMPTOMS & IDENTIFICATION

Seed of late planted peas or beans is attacked during germination. Eggs are laid on freshly disturbed soil by adults attracted to decaying vegetable and plant material. Larvae feed on newly planted seeds and seedlings, tunnelling into freshly imbibed seeds and the stems of small seedlings. Damage to the seed causes damage to the plumule and root and often to the growing point of the plant, resulting in a 'baldhead' symptom, where the stem elongates but no terminal leaves are present. In peas and faba beans secondary shoots may be formed to compensate for the damage to the growing point, but in Phaseolus beans this is not the case. Severely damaged seeds fail to produce a seedling and decay before emergence.

Damage often occurs in patches as the flies aggregate before egg-laying and late cultivated fields containing high levels of green material, either weed or crop debris, are more prone to infestation.



Bean seed fly larval stem tunnelling in Phaseolus beans



Distortion of growing point caused in peas by damage to seed and stem by bean seed fly larvae

CONTROL

Late spring and early summer sowings are most at risk from attack. Seed bed preparation should ensure that weed growth has died back before cultivation and that there is little to no green organic material in soils. Increased tillage is associated with increased numbers of bean seed fly larvae and minimum tillage may help to manage the pest. Furthermore, there is some evidence that leaving a period of at least seven days between latest cultivation and drilling may help to reduce levels of damage caused by larvae. There are no insecticidal seed treatments to control bean seed fly larvae in the UK and soil insecticide applications are of limited value to control the pest.

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