

DAFM Plant Pest Factsheet

Bruchus rufimanus Bruchid beetle



Fig 1: Adult *Bruchus rufimanus*

Pest Characteristics

- **Pest:** *Bruchus rufimanus*
- **Common name(s):** Bruchid beetle, bean beetle, broad bean weevil.
- **Hosts:** *Bruchus rufimanus* is a major pest of faba bean (*Vicia faba*) crops. Typically *V. faba var. minor* very susceptible, though there are increasing reports of impacts on *V. faba var. major*.
- **Invasive Risk:** Specimens of *B. rufimanus* were first noticed infesting faba bean in 2016 by Teagasc. A survey of 48 commercial growers conducted between 2018-2020 found 30% of crops had some degree of infestation.
- **Entry Pathways:** Imports of infested faba bean seed for planting are regarded as the pathway with the highest risk for introducing the pest into new regions. It is by this mechanism the pests has followed faba bean cultivation around the world.
- **Impact:** The pest consumes the seed's endosperm layer reducing its weight, nutritional content and the vigour of seedlings. Infested crops are therefore devalued and also restricted from certain markets. Harvested crop displaying infestation levels of $\geq 2\%$ and $\geq 10\%$ are not generally accepted in markets for human and animal consumption, respectively.
- **Visual Symptoms:** Surveillance of crops for infestation can be undertaken by visual inspection or by using pheromone trap lures (Fig. 2). Plant stems and pods can be inspected for adults. Eggs are very small and difficult to see on pods (Fig. 2 b). Often signs of infestation are most clear on crops after adult emergence from seeds when exit holes are visible (Fig. 2 c)

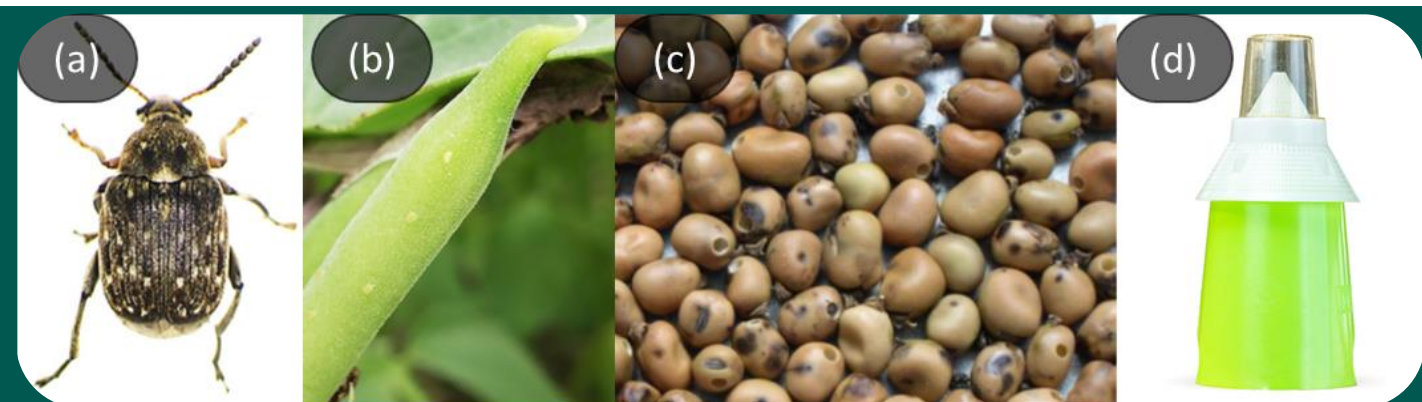


Fig 2: Symptoms adult (a); eggs on pod (b); infested seeds post harvest(c); typical pheromone trap (d)



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- **Dispersal:** Adults are strong flyers and spread once they emerge from over-wintering in the spring, but only once temperatures reach $\geq 15^{\circ}\text{C}$.
- **Distribution:** *Bruchus rufimanus* is nearly distributed worldwide and is present in nearly every region where faba bean is cultivated.
- **Adaptability:** The pest has established in the Irish climate. In all regions the pest is known to only complete 1 generation per year (univoltine).
- **Lifecycle:** Adults (Length ~ 3-5mm) emerge in the spring from over-wintering sites which are generally in wooded areas (e.g. bark, lichen, hedges etc). Adult emergence, activity and flight requires temperatures of at least 15°C . Adults can reportedly fly up to 8-10 km to reach hosts plants. Males colonise the host crops first, feeding on nectar and pollen (this is necessary for males to mature sexually). Females then colonise the host crop when flowering begins (photoperiods of 16hr and consumption of host plant pollen are necessary factors for females to mature sexually). Mating occurs in the crop and females lay eggs (length ~1-2mm) directly onto pods. Females lay ~10 eggs per pod and lay between 50-100 eggs in total. Hatched larvae bore directly into the seed but only consume the endosperm layer, without damaging the embryo. Larval development occurs in the seed and adults bore exit holes out of the seed in late summer/autumn and seek out over wintering sites. Previously infested have lower germination rates and reduced seedling vigour. Adults can either emerge in the autumn (early emergence strategy) or in certain cases remain in the seed throughout the winter (decelerated larval development) emerging in planted seeds the following spring (late emergence strategy).
- **If suspected:** If you find a suspected specimen in faba bean seed or crops consult your Teagasc advisor or agronomist for control options.

Photo credits: All images used in Fig 1, Fig 2 and the Lifecycle where taken from Roubinet, (2016): <https://pub.epsilon.slu.se/13631/> & Segers *et al.* (2016): <https://doi.org/10.1016/j.cropro.2020.105411>



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