

DAFM Plant Pest Factsheet

Erwinia amylovora Fireblight



Fig 1: Fireblight “Shepherd’s stick” symptoms on hawthorn shoot

Pest Characteristics

- **Pest:** *Erwinia amylovora*
- **Common name:** Fireblight
- **Hosts:** The bacteria have a wide host range (>200 species). Most hosts are within the subfamily *Maloideae* of the family *Rosaceae*. The most common host genera relevant to Ireland include *Cotoneaster*, *Crataegus* (hawthorn), *Malus* (apple), *Pyrus* (pear) and *Sorbus* (mountain-ash).
- **Invasive Risk:** It was first recorded in Ireland in 1986 on a *Cotoneaster sp.* in Dublin. In the Republic it is regulated as a quarantine pest and findings are eradicated, with the exception of Galway city, where it is established since 2014. In Northern Ireland it is unregulated and widespread.
- **Entry pathways:** Fireblight was likely introduced into Ireland on imports of host plants which had latent infections. Symptoms of infestation are usually not initially evident but become expressed when plants are under stress.
- **Climatic suitability:** The pest is well suited to Irish climatic conditions.
- **Symptoms:** The distinctive symptom is the “Shepherd’s stick” which is a curling of the dying shoot and leaves (Fig 1, 2 & 3). In certain hosts leaves turn a reddish colour. Infested flowers typically appear wet, become brown and then turn black (Fig 2c). Fruits are particularly susceptible during early development, their insides become dark (necrotic) and can remain mummified on the tree (Fig 3). Cankers can be present on root, twigs, branches and trunk (Fig 3). Infected organs can produce an “ooze” which is a bacterial exudate in a protective mucus coating (Fig 3).



Fig 2: Symptoms can include (a) “Shepherd’s stick” and red leaves on *Cotoneaster watereri*; (b) dying and curling of shoots (Shepherd’s stick) on apple tree; (c) blighted pear blossoms.



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- **Impact:** Pear cultivars are typically more susceptible than apple, though both orchard sectors have suffered severe impacts. Uncontrolled, fireblight kills twigs, branches and eventually the tree. The costs of management and subsequent yield loss have impacted production volumes and have led to the need to replace older cultivars with new resistant cultivars.
- **Distribution:** The origin of fireblight is in North America. It has been introduced to Europe, western Asia, North Africa, and New Zealand (Fig 4).
- **Dispersal:** Pollinators can spread bacterial exudates between plants introducing infection in new flowers. The exudate can also be dispersed locally by wind and rain. Infections can also be spread to new trees through infested grafts and equipment used in pruning or tree care.
- **Lifecycle:** The primary infections typically occur in spring from inoculum (reserves of bacterial cells) from the previous year. Inoculum can overwinter in buds, mummified fruits and cankers. The bacteria enter the plant through natural openings such as nectaries or stomata. Bacterial numbers build up in these primary sites and subsequently invade peduncles, shoots, leaves and immature fruits. Secondary flowering are generally more susceptible to late infection as the environmental conditions favour infection. Temperatures as low as 12°C are suitable for fireblight infection, though the most suitable conditions are temperatures of 18-29°C, 90-95% humidity and wet plant surfaces.
- **If suspected:** If you find suspected symptoms or specimens, please submit images to DAFM at: plantsandpests@agriculture.gov.ie

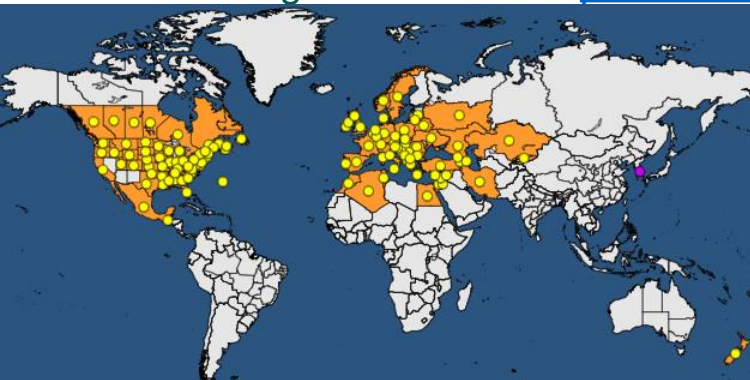


Fig 4: World map of *E. amylovora* distribution taken from the EPPO database ([Link](#))

Photo credits: All images were obtained from the EPPO database ([Link](#))



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