EuroBlight
A potato late blight network for Europe

Updated 23 March, 2020, Jens G. Hansen

Primary inoculum sources

Dumps: In The Netherlands a regulation exists that forces growers to cover dumps with black plastic before 15th April (www.productschapakkerbouw.nl) . In the UK the influence of dumps on the late blight epidemic is an important part of the Fight against Blight campaign (www.potato.org.uk). It is again difficult to quantify the effect of eliminating dumps. Maybe the time between the first appearance of blight in a region and the appearance in production fields could be used as an indication of the influence the elimination of dumps.

Alternative hosts: In Sweden hairy nightshade (*Solanum physalifolium*) was observed to be seriously infected with late blight (Andersson et al., 2003). It is unknown whether this weed is occurring in other countries. Also little information is available about the compatibility of the late blight isolates on this weed and potato.

Oospores: Usually the ratio of the A1 and A2 mating types in the same field is used as an indication for the (possible) occurrence of oospores (Fig. 1). Monitoring for both mating types can help to assess the risk for the occurrence of oospores. There are still a lot of questions regarding oospores. What triggers their germination? Probably water, but maybe also the temperature change during winter (freezing/thawing) plays a role. Nothing is known about the effect of organic matter on survival and germination and whether certain crops can be used as a trap plant. It is stated that the best way to reduce the influence of oospores is to prevent the development of late blight in the previous crop and to control volunteers (in which oospores can be formed abundantly).

Seed potatoes: It is recommended to use certified seed but this is not a guarantee that the seed will be completely free from blight since blight can be latently present in the seed tubers. In for example Poland the availability of certified seed is limited. It is technically possible (PCR) to detect latent infections in seed tubers. The problem is however that when 1:10,000 tubers is infected it can already create a primary inoculum source. With such a low frequency of occurrence it will be almost impossible to find it in sample of a reasonable size. It might also be possible that infected tubers not only infect a plant that grows from this tuber but that it can also infect daughter tubers without infecting aboveground plant parts. In order to assess the risk for the occurrence of latently infected tubers it is recommended to survey the history of the growing season in which the seed potatoes were grown. The incidence of late blight in the crop and the choice of the fungicides and their timing will provide information that can be used to assess the risk for the occurrence of latently infected tubers.

Uncontrolled late blight:

- Volunteers: the number of volunteers is mainly influenced by weather conditions in winter. Milder winters result in more volunteers. Usually volunteers are not a primary infection source. But in 2007 there are strong indications that infected volunteers also acted as primary infection sources. Depending on the crop in which the volunteers occur, control is usually difficult and labour intensive. A real-time vision detection of volunteers in sugar beet fields is developed in The Netherlands (Nieuwenhuizen et al., 2005).
- Early (covered) crops: control must be emphasized either by spraying over the crop cover or directly after removal of crop cover (Spits et al., 2003). The cover should be removed on days with weather conditions that are not critical for spreading of viable spores.
- Unsprayed/organic crops/allotment gardens: In the Netherlands there is a regulation that forces growers to treat (or destroy) a crop with an excessive infection of late blight (www.productschapakkerbouw.nl). Usually these infected fields do not occur early in the season and are therefore not considered to be important primary infection sources.

Figure 1. Attack from oospores at Flakkebjerg 2019. Photo by Jens G. Hansen, AU

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Literature

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