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Oospores of *Phytophthora infestans* in soil provide an important new source of primary inoculum in Finland

Keywords potatoes, *Solanum tuberosum*, potato late blight, *Phytophthora infestans*, epidemiology, oospores, mating type, sexual reproduction, soil borne inoculum,

Abstract

There have been numerous indications since the 1990s that oospore-derived primary infections play an increasing role in the epidemiology of potato late blight. The aim of this study was to verify that oospore-derived epidemics actually occur in Finland. For this purpose, 20 suspected foci of oospore-derived potato late blight were scouted in 2000–2002. All foci were located in fields in which late blight had been observed in at least one of the four previous years. Primary symptoms in these foci occurred always on the lowest leaves near the ground. Leaflets typically showing numerous primary infections or lesions were in direct contact with the soil. In the former, oospores were observed after incubation. So in experimental fields, marked by severe epidemics in most years during the last decade, caused infections in a bioassay. Both mating types were on every occasion present in lesion isolates collected from foci and the bioassay. Oospores survived over the winter, as shown by soil samples taken during the spring that infected potato leaflets in the field. The results presented indicate that oospore-derived epidemics occur in Finland. This paper also discusses the role of oospores in causing blight epidemics in Finland compared to other countries.

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