

Survey of Bacterial and Fungal Seedborne Diseases in Imported and Domestic Potato Seed Tubers

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Potato seed tubers are imported to Israel from northern Europe and planted in spring; tubers harvested early from the spring crop are used as seed for the autumn crop. Although only seed lots registered as certified are imported, a previous survey (1984–1994) indicated that most imported lots were affected by latent or active infections caused by *Erwinia carotovora*, *Streptomyces scabies*, *Rhizoctonia solani*, *Fusarium* spp. and *Spongospora subterranae*. The survey was extended until 1998, and included additional pathogens: *Ralstonia solanacearum*, *Helminthosporium solani*, *Colletotrichum coccodes* and *Verticillium dahliae*. Most of these pathogens were also monitored in domestic seed tubers, and are reported for the first time. Brown rot was not observed in any of the imported lots. Blackleg and soft rot caused by *Erwinia* spp. were detected in most of the imported lots; however, less than 7% of the lots were contaminated at high levels, while approximately 65% were contaminated at moderate levels. Common scab was detected in most of the imported lots; 51% of the imported lots were contaminated at moderate or high levels, whereas only 6.5% of the domestic seed lots were contaminated at these levels. Black scurf was detected in most of the imported lots; on average, 47.3%, 44.2% and 1.4% of the lots were contaminated at low, moderate and high levels, respectively, and only 7.1% were disease-free. In contrast, most of the domestic lots were either disease-free (45.4%) or had a low disease incidence (37.3%). Only 16.7% of the lots were moderately infected and 0.2% were highly contaminated. Silver scurf was observed in most of the imported lots during all years of the survey, with no differences among the producing countries; on average, 22.7%, 66.1% and 7.5% of the lots were contaminated at low, moderate and high levels, respectively, and only 3.7% were disease-free. Most of the domestic lots (76%) were disease-free and only 6.6% were infected at moderate or high levels. Black dot was observed in a considerable portion of the shipments from Holland during all years of the survey, particularly in 1998, when 34% of the lots were infected. The shipments from France and Germany were infected at low levels, except in 1998, when 19% and 11% of the lots, respectively, arrived infected. In shipments from Scotland and Ireland low incidences of the disease were observed in 1994 and 1995. In the domestic lots, black dot incidence was low (<2.4%) except in 1996, when 11% of the lots were infected. *V. dahliae* was monitored only in domestic seed tubers. The incidence of disease-free lots was 56–64%, whereas in 20–30% of the lots the level of infection was <5%, and in 6–16% of the lots the level was >5%. The survey findings demonstrate transmission of seedborne pathogens; most of these pathogens can become established in the soil and eventually cause severe outbreaks of disease in potatoes grown in Israel.

KEY WORDS: *Erwinia carotovora*; *Streptomyces scabies*; *Ralstonia solanacearum*; *Rhizoctonia solani*; *Helminthosporium solani*; *Colletotrichum coccodes*; *Fusarium* spp.; *Spongospora subterranae*; *Verticillium dahliae*.

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