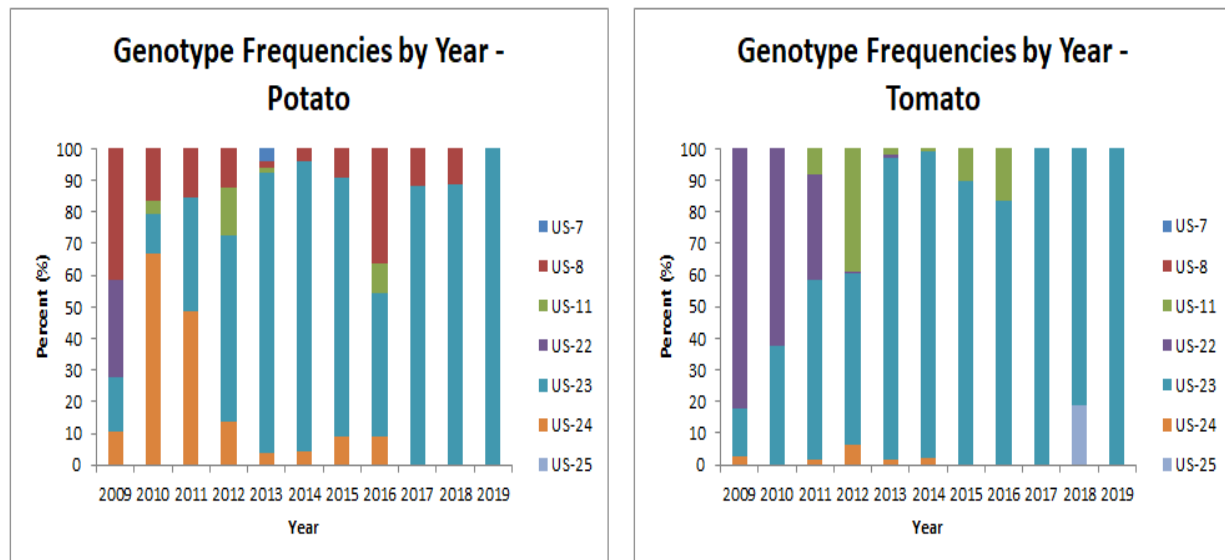


## Text S4. Dominant and ephemeral lineages

Emergent clonal lineages of *P. infestans* occur as "dominant" and "ephemeral" lineages. Ephemeral lineages may be only observed once or for one season. Dominant lineages are abundant over several seasons and their emergence may be declared an epidemic. For ex-ample, the dominant lineage US-1 was once thought to be the single clonal lineage present globally [5]. During the 1990s dominant lineages US-8 and US-11, lineages that have resis-tance to the fungicide metalaxyl, displaced US-1 to become the dominant lineages [2, 3]. In 2009 a new epidemic with new lineages occurred [4, 6]. The dominant lineage US-23 was observed on potato in 2009 but was not abundant (Figure Supplement 1). Since 2009 it has steadily become more abundant and is now the most frequently observed lineage on potato or tomato. In contrast, the ephemeral lineage US-24 was abundant in 2010 and 2011 on potato but has almost completely disappeared in subsequent years. As similar pattern of dominant and ephemeral lineages has been reported from Europe [1].



Supplemental item 1. Lineages of *P. infestans* occur as dominant and ephemeral lineages. Stacked barcharts indicate the relative abundance of each lineage for each year. Data courtesy of William E. Fry [4], the Ristaino lab [6, 9, 8, 7], and USAblight (<https://usablight.org/about-late-blight/recent-us-genotypes/>).

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