Trends in potato late blight epidemics in Switzerland since 1990

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Introduction
In the framework of PhytoPRE, the decision support system for potato late blight (PLB), the development of PLB-epidemics were evaluated using small, untreated potato plots distributed over the potato growing region in Switzerland. Since 1990, plots were planted with a highly susceptible potato variety, primarily Bintje, comprising the Agroscope Late Blight Observation (LBO) Network. LBO disease monitoring was conducted in collaboration with the cantonal plant protection offices and advisors. Epidemic trends in all of Switzerland (between 1990 and 2016) and regionally (between 2000 and 2016) were assessed.

Results
• During the 27-year period, no change in the start of the epidemic was detected over time (Fig. 1A), but half of the monitored plots in the LBO Network appeared to be infected marginally earlier over time (Fig 1B).

• When all plots are included in the linear regression (not only the first outbreak), infections appear occur earlier over time (Fig. 2A).
• Data from LBO plots since 2000 were used to assess regional trends over time (Figs. 2B and 3) and to assess the accuracy of the DSS, PhytoPRE (Fig. 4).

• We used LBO plots associated with different weather stations to evaluate trends within smaller geographic areas.

Conclusions
The first LBO infections in a country-wide and regional basis are not occurring earlier with time. On average, all infections during the season seem to occur earlier, perhaps suggesting that outbreak may be spreading faster. These results may be confounded by a reduction of LBO plots with time. No temporal trends in PhytoPRE’s predictive ability were found.

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