

## **Advances in the development of an integrated management of Powdery scab, caused by *Spongospora subterranea f.sp. subterranea* in the potato crop in Chile**

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Potato is a very important crop in Chile, where 45.000 ha are cultivated with a production of 1.300.000 tons. Climate change and decreased rainfall have forced irrigation to be incorporated into the crop. The lack of experience and sources of information for decision-making in irrigation has generated problems of efficiency and health. In recent years, there has been a 30% increase in the incidence of *Spongospora subterranea f.sp subterranean* (Sss), a disease that affects the production chain, causing losses in yields, quality and profitability. The objective of this work is to develop an integrated management for the preventive control of Sss, through the early detection of the pathogen, the efficient irrigation and soil and climatic factors. This project considers the validation and implementation of an integrated preventive management package, based on a support tool for risk assessment, defined from the interaction of factors such as seed quality, varietal resistance, chemical and biological control, efficient management of irrigation and detection and quantification of soil inoculum of the pathogen using the qPCR technique. To date, the use of the PLAS Satellite Agricultural Platform (<https://www.agrisatwebgis.com/app/es/agrisat/map?group=Plas#spUsrMapSidebarLayersTab>) has been validated in 3 productive farms to define the efficient use of irrigation, together to physical and chemical soil characterization, showing reduction in the expression of the disease in roots and tubers, depending on soil compaction and nutritional balance, especially the K/Mg ratio. Also, the susceptibility to Sss of 16 potato cultivars has been evaluated and the chemical control results show 30% efficacy. At the same time, the quantification curve of the pathogen in soil has been standardized and validated with two markers using soil samples with a history of the disease.

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