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Finding solutions against viral yellows in Europe without phytosanitary products.

In Europe, public authorities, in response to very strong societal expectations, systematically encourage the reduction of synthetic phytosanitary product uses. Thus, in 2018 in France, all the neonicotinoid range insecticides including products with similar action modes, were, in order of the preservation of foraging insects, completely banned in sugar beet, and on all other crops. In 2020, the various viruses of beet yellows, following an explosion of aphid vector populations, no longer controlled by neonicotinoid insecticides, developed strongly on almost all of the 400,000 French sugar beet hectares, leading to a loss of 30% of production at the national level, impacting the entire economy of our French sugar beet sector, while questioning its sustainability in the most affected regions. In 2021, a national research program partially funded by the government focusing on solving these recurring viral threats was launched. This program was intended to be without restriction of scientific approach, including new prospects for the control of insect populations such as the repulsion of aphid vectors using smells. The first phase of this program (PNRI) started in 2021 to identify new solutions to fight viral yellows has been completed and we have moved on to the operational stage of deploying these solutions in real crop conditions. To do this, we rely on an original network of about sixty pilot farms deployed throughout the country to conduct experiments in real growing conditions in the different production contexts sugar beets are grown in France. The control strategy is currently based on 4 pillars: reducing viral reservoirs through prophylaxis, reducing the presence of aphids, maximizing biological regulation and increasing varietal tolerance to viruses. We propose to present during the ASSBT congress the research approach and the results obtained for each lever tested. The first bases of reasoning for the combination of these levers will also be discussed, as well as the obstacles to adoption by farmers.