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France Will Deploy a Vineyard Disease App Nationwide in 2027

After trials in eight wine regions, Pomme aims to speed detection of flavescence dorée through real-time vineyard reporting

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French wine-sector researchers and vineyard groups are preparing to roll out a national digital tool to improve surveillance of flavescence dorée, a serious grapevine disease, after several years of development and field testing across major wine regions.

The application, called Pomme, is expected to be available for vineyard scouting in 2027 under work carried out through France’s National Vineyard Sustainability Plan. The project was initiated by the Bordeaux group for the defense against agricultural pests, known as Gdon des Bordeaux, and developed with partners in Bordeaux and Alsace. The tool is designed to help vineyard technicians and growers organize inspections, record field observations directly in vineyards and quickly share data for analysis.

Flavescence dorée is a quarantine disease of grapevines spread by a leafhopper vector. In France, controlling it relies on hot-water treatment of planting material, field inspections, control of the insect vector and removal of symptomatic vines. Because infected plants must be found quickly and removed, officials and researchers see better detection and faster data handling as one of the main ways to limit its spread.

Sophie Bentéjac, director of Gdon des Bordeaux, said one of the main problems has been the way field data are still collected and processed. In some areas, teams continue to work from paper maps. That makes data entry slow, reduces reliability and complicates data sharing and analysis, she said.

Pomme was built to address those limits. According to Bentéjac, the application can be used to prepare inspections, draw vineyard blocks and scouting zones, register teams and enter observations directly in the field. A PC version has been under testing since 2025. Trials took place in five wine-growing areas in 2025 and expanded to eight in 2026: Bordeaux, Bergerac-Duras, the Loire, Alsace, Burgundy, Charentes, Beaujolais and Pyrénées-Atlantiques. A connected smartphone and tablet version is also being tested in 2026, while developers are working on an offline mobile version because some vineyards have poor or no network coverage.

French wine-industry bodies wanted to include as many producing regions as possible during the testing phase so the system could reflect different local needs. Training tools are also expected to be provided by the French Vine and Wine Institute, or IFV, for users who adopt the platform.

The effort matters beyond plant health administration. Faster and more reliable vineyard surveillance could help wine producers target controls more efficiently and reduce losses from a disease that can damage yields and disrupt grape supply. Over time, better shared data could also support more consistent decision-making in regions that supply the broader beverage industry.

Researchers also want Pomme to improve the understanding of how the disease spreads. National observation data will be transmitted to France’s plant health epidemiological surveillance platform, and researchers are expected to receive information in real time. That could strengthen work already under way at INRAE, France’s national research institute for agriculture, food and environment, to identify the biological and environmental factors that influence infection risk in a vineyard parcel.

Using scouting data collected by Gdon des Bordeaux from 2012 to 2016 across 89,000 hectares in 350 municipalities, INRAE researchers modeled the risk of infection and identified nine parcel characteristics and six landscape variables that appeared to matter. Grape variety had a significant effect. Merlot was found to be twice as sensitive as Cabernet Sauvignon, Cabernet Franc or Muscadelle. Risk also declined with altitude. In the study area, wetlands near waterways were more favorable to the disease and its vector, and risk also increased near forests and urbanized areas.

Frédéric Fabre of INRAE said those environments often contain regrowth from rootstocks, which may serve as reservoirs for leafhoppers and phytoplasmas. Vineyards near urban areas may also receive less treatment, he said. By contrast, a high share of vineyards within a radius of 150 to 200 meters reduced risk, possibly because of stronger insecticide protection or a dilution of infection pressure. The analysis also found that, on average, 50% of new infections occurred within 10 meters of a source plant and 80% within 22 meters.

That historical analysis was also used to build a flavescence dorée risk forecasting model. When tested for its ability to detect municipalities where more than 10% of parcels were infected, the model showed 89% sensitivity, meaning it detected most of the affected municipalities, but only 50% precision, meaning that only half of the

flagged municipalities were actually above that threshold. Fabre said the model still needs improvement, but he described the result as proof of concept. He said the longer-term goal is to use such modeling to direct field scouting, which requires data to be integrated from one year to the next. That automation, he said, should make it possible to create risk maps without replacing the judgment of field technicians.

Work on the application will continue under Innova-Vigne, a project running from 2026 to 2031 and led by IFV with funding from Parsada. The project aims to develop pest-management strategies without synthetic insecticides by combining early detection, alternative controls and targeted preventive measures. In addition to finalizing Pomme, researchers want to expand its functions to include leafhopper counts, verification of vine removal and treatment checks, and surveillance of emerging threats.

Other detection tools are also being studied. At IFV Grau-du-Roi, trials are under way on a PCR test using wood samples to detect the phytoplasma linked to black wood disease. Anastasia Rocque of IFV said the test could in principle detect the flavescence dorée phytoplasma as well, but it is much less sensitive than a leaf-based test. Because flavescence dorée is a quarantine disease, regulations will still require a leaf test for formal confirmation. A wood-based test could still be useful outside the growing season, when leaves are not available. Rocque said that work is close to completion.

A second tool planned for study in Innova-Vigne is a molecular test that could be carried out directly in the vineyard in less than one hour. Rocque said that type of test could speed detection and make scouting more efficient. The first trials could take place in 2028 and 2029.

For now, French researchers say there is no short-term replacement for insecticides that fully controls the leafhopper vector. In organic production, that remains a particular problem. Two products are currently authorized for biological control in France: Pyrévert, whose effectiveness can vary, and Lumière, authorized since 2024. IFV recommends using Lumière together with Pyrévert and advises against relying on it in areas where only one treatment is permitted.

Several alternatives have been tested, including pressurized water stripping, mechanical bark removal, calcium dihydroxide, mineral oil and glue. Audrey Petit of IFV said none of those options has fully eliminated leafhoppers so far, and their cost-benefit profile and ease of use remain unfavorable for large-scale deployment. New trials on insecticide alternatives are planned in Innova-Vigne, while INRAE is also studying ways to disrupt transmission of the phytoplasma by the leafhopper through research on the pathogen’s surface proteins and on insect genes involved in attachment and entry.