

New research could help winemakers with 'stuck' batches

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(Phys.org)—Batches of wine that get "stuck" or slowed during the fermentation process pose a big problem for winemakers, costing them time, money and a lot of ruined batches.

But a new study by Chilean researchers and the University of Florida may help change that, by enabling producers to predict which batches are most likely to stall.

The researchers looked at two data analysis methods to see how well each was able to predict within 72 hours whether a batch of wine's [fermentation process](#) was problematic in any way.

The data analysis systems—Multiway Principal Component Analysis, known as MPCA, and Multiway Partial Least Squares, known as MPLS—were tested on 17 wine batches, and measured values of variables such as sugars, density, alcohols, [organic acids](#) and [amino acids](#)

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While the MPCA method predicted troublesome batches 67 percent of the time, the MPLS application did so 100 percent of the time, said Art Teixeira, a UF Institute of Food and Agricultural Sciences professor in food process engineering, and one of the study's authors.

The research team's findings will be reported in this month's issue of the journal *Food Control*.

"There are some new [mathematical approaches](#) that my colleagues and I have learned to use, and we wanted to see if these could help detect problematic batches, and help tell us they're going to be problematic within the first 72 hours of setting them up," Teixeira said. "If we can determine that soon enough, then measures can be taken that would save the batch."

Teixeira noted that because one method worked better than the other, that doesn't mean one [statistical method](#) is superior – just that it's superior to use for this specific application.

"These are simply examples of applying high-level mathematics to analysis of data, such that the analysis helps us find out what are the variables to look at and monitor to know when a batch is going to go bad," he said.

Florida's grape industry, which includes fruit used for [wine production](#), is valued at \$20 million.

Once the study is published, Teixeira said, industry scientists will use the results to know which specific variables to test and watch for as they monitor the wine fermentation process.

Provided by University of Florida

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