

## TETRAD VS. TRIANGLE

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What is the tetrad test and how can you use it in your brewery?

Discrimination testing has long been used to determine if there is a perceptible sensory difference between two samples. Discrimination testing can be used to determine if a process or ingredient change causes a perceptible change to the end.

The tetrad test is a relatively new discrimination test where assessors are presented with four samples and asked to group them into two groups of two by how similar they are.

In the triangle test, panelists are presented with three samples, two from one group and one from another group, and asked to choose the sample that is most different.

The advantage of the tetrad test is that fewer panelists are needed. Studies have shown the tetrad test to be a more precise estimate of the sensory difference between samples. According to ASTM, "The tetrad test is more efficient statistically than the triangle test (Test Method E1885) or the duo-trio test (Test Method E2610)." In 2017, the ASBC Sensory Subcommittee performed a study validating the sensitivity of the tetrad test. In that study and the follow-up study the tetrad test was found to be a suitable replacement for the triangle test.

The advantage of the triangle method is that assessors have fewer samples that need to be evaluated. Methods that involve the evaluation of less samples may be preferred when the products being tested have carryover, excessive sensory fatigue, or contain alcohol, or if there is a limited amount of the sample being tested.

Training should be done to familiarize panelists with the method prior to running the test. Assessors tend to give better feedback once they become familiar with the process. Both tests work best when the products are homogenous, and both tests are for overall differences rather than identifying what those differences are. It is not possible to know the degree of differences that exist among products.