

“Lab X says my perc rate is 27 in/hr, but Lab Y says it’s only 21 in/hr. How can that be?”

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“Analytic variability is a fact of life in the laboratory. Determining acceptable variability limits is a complex decision involving the clinical demands of the conditions being treated and the ability of laboratory technology to meet the clinical needs of the decision making process...A substantial fraction of erroneous laboratory results (about half) are not attributable to analytic variability or test processing problems. They come from other aspects of the cycle, including specimen collection and handling.”

The above paragraph was taken from a document about medical laboratories prepared by Richard E. Belsey, M.D. and Daniel M. Baer, M.D from the University of Iowa.

We all know that medical tests are not comparable to testing related to golf construction and maintenance, but the doctors do bring up a good point. All lab tests have variability! In general, complex tests with many steps will have more opportunities for variability in results. Tight test procedures (with little room for varying the procedure) can help to reduce these variances. Test procedures that leave much of the technique up to the lab will usually have high lab-to-lab variances.

Many factors can affect consistency in results, including analyst skills, the equipment used, quality control procedures, maintenance practices, and sample stability, to name a few. Sampling technique also plays a critical role in getting good and consistent test results. If a sample is not taken properly, then consistent test results are unlikely and test data may be meaningless.

Tests such as the USGA particle size and gravel distribution are relatively simple. When these tests are performed according to proper procedures, lab variances should be quite small. Tests such as the USGA performance evaluation have multiple steps, and can be performed with many different types of equipment. Other tests, such as the bunker sand fried egg lie (penetrometer), allow for considerable variances in technique. Thus, it should not be surprising that infiltration rate and penetrometer results have higher variability.

The accredited testing labs have an organization where we work together to improve our industry. The Putting Green Committee (PUG) consists of testing labs, USGA representatives, and representatives from the American Association for Laboratory Accreditation (A2LA). PUG members participate in quarterly testing programs, annual meetings, and various activities geared toward improving the labs individually and collectively.

One of the major efforts of PUG has been to reduce variability in test results between labs. Steady progress has been made, and lab-to-lab inconsistencies have been reduced for some of our most important tests. While analytical variability may be a fact of life, the labs continue to work together to reduce variances in golf course related testing.