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by RON HALL / Senior Editor

f you could spend an extra \$1,000 during the construction of greens on your golf course, and eliminate problems that might later cause you sleepless nights, would you do it?

You bet you would.

For that amount-probably even less-you can implement a quality



Hummel: Some laboratories can have soil test results within 24 or 48 hours.

control program for your course-wide greens construction project, says Dr. Norm Hummel, Jr., president of Hummel & Co., a consulting and testing firm headquartered in Trumansburg, N.Y.

While a quality control program doesn't guarantee success, it reduces the risk of failure, explains Hummel. Here are stages of the greens construction process where quality control is essential, he says:

Subgrade and installation of subsurface drainage. Is the green's subgrade stable and compacted? Are the cavity edges firm? Do drain lines cover the entire green cavity? Are all pipe connections cemented properly?

Gravel layer. Test to ensure it conforms to the correct particle size. (The USGA provides guidelines for selection of gravel.) Make sure that the gravel that's delivered to your golf course is what you originally approved and accepted.

Grade of the gravel layer. It should follow the contours of the green, and be 12 inches below finish grade across the green. If the gravel layer is not uniform, it will result in varying depths of rootzone mix in different areas of the green. This could result in wet and dry spots on the green, and make the green difficult to irrigate properly. Rootzone mix materials. Whatever the mix ratio, have the sand tested for correct particle size, and select a high quality peat. A laboratory can do tests to analyze the performance properties of different ratios of sand and peat. Once both the sand and peat arrive at your course, and before they're blended, check them again.

Rootzone mix production. If you're buying preblended rootzone mix from a supplier that sells mainly to the turf market, it's still wise to pre-approve 500 to 1,000 one-ton stockpiles prior to delivery.

If you're blending the rootzone mix at the golf course, establish a sampling procedure for each 500 to 1,000 tons. (Some professional blenders like the Kurtz Bros. in Ohio bring a quality control laboratory to the site.)

To get a rootzone sample, use a long narrow sampling tube known as a sand robber, but a length of PVC pipe works almost as well. Collect rootzone mix by sticking the tool into different areas of the pile.

Dump the material on a piece of carpet, mix it up, split it in half, mix the remaining amount, then collect about a gallon to be tested at a laboratory.

If you're in a hurry to find out about the rootzone mix, some laboratories provide priority testing services and can return results within 24 or 48 hours.

Hummel says all the quality control procedures he recommends won't add any more than \$1,000 to the cost of a greens' construction project, a small price to pay for added peace of mind. \Box