NEWS FROM
VERDE-CAL®
Products of **AQUA-AID, INC.**

First Quarter
2013

Miller's Miscellaneous

This quarter's newsletter holds great information about the different soil testing methods that are available. A bit of history is included in the articles to explain how soil testing has evolved into what it is today.

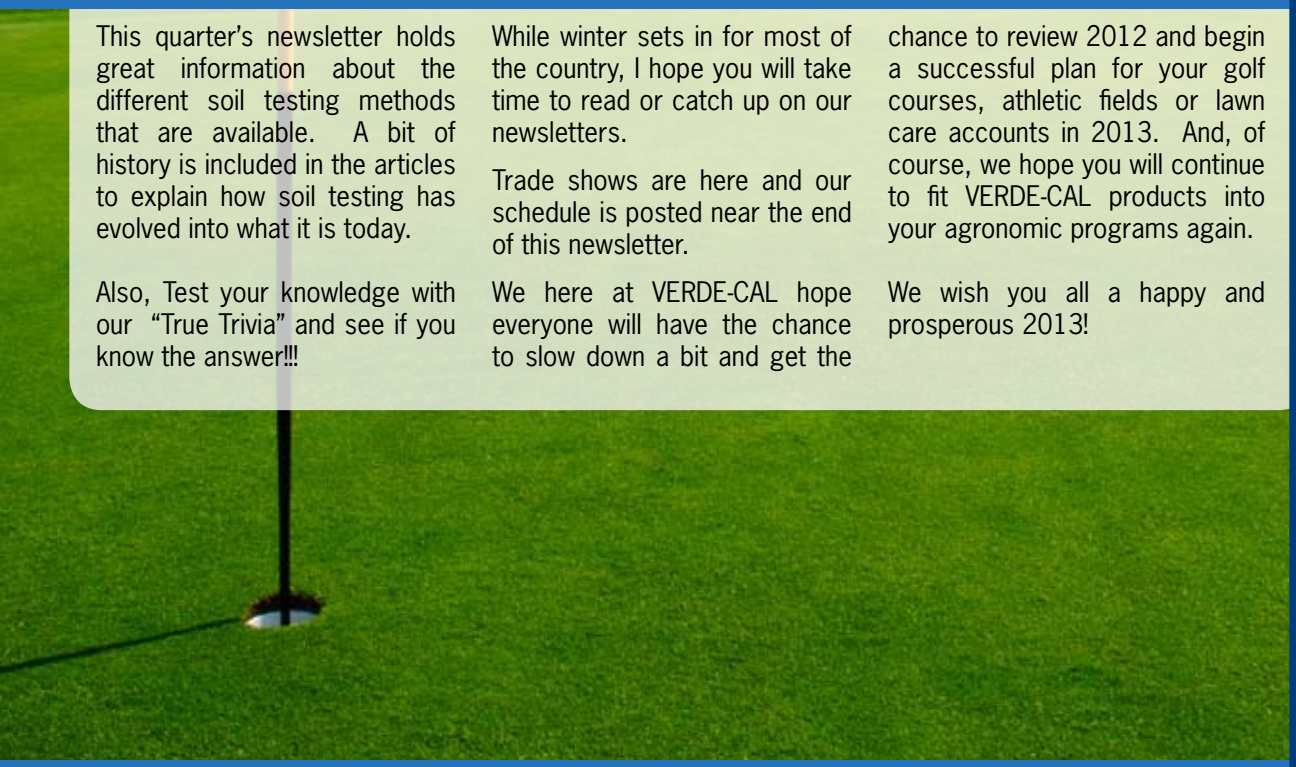
Also, Test your knowledge with our "True Trivia" and see if you know the answer!!!

While winter sets in for most of the country, I hope you will take time to read or catch up on our newsletters.

Trade shows are here and our schedule is posted near the end of this newsletter.

We here at VERDE-CAL hope everyone will have the chance to slow down a bit and get the chance to review 2012 and begin a successful plan for your golf courses, athletic fields or lawn care accounts in 2013. And, of course, we hope you will continue to fit VERDE-CAL products into your agronomic programs again.

We wish you all a happy and prosperous 2013!



What is a Bray Test?

A Bray test is a very precise method of extracting "***plant available***" phosphorus from the soil. The test was developed by Drs. Bray and Kurtz in 1945 at the University of Illinois. Many times you simply see the word Bray on the test sheet, but sometimes it may also include Dr. Kurtz (Bray/Kurtz) name as well.

These Drs. used a mild solution of hydrochloric acid and ammonium fluoride as the extraction fluid to determine the plant available phosphorus from a soil sample. This method is used and highly recommended for soils of neutral to acidic classification. (pH of 7 or less) The purpose of this test was not to determine if there was phosphorus present, but more importantly to determine the amount (ppm) of that phosphorus that is plant available. Far more important to know!

When using the Bray test method, the Bray results should be between 5 to 10 ppm for best availability to the plant. Anywhere below or above those levels and phosphorus will be unavailable to the plant. By knowing this you can accurately determine the amount of phosphorus to apply for proper rooting and plant growth quality.

Very few labs utilize the Bray test anymore. Cost and new technology (See Mehlich article) have stream-lined the testing of phosphorus and the Bray test is only used today by a handful of labs. It is still considered the best method to determine plant available phoshphorus from your soil sample.

Labs that utilize a version of the Bray tests, called Bray 1 and Bray 2 are testing readily available and reserve available phosphorus. Bray 1 should read between 20 to 40 ppm. Bray 2 should read between 40 to 60 ppm. A 1:2 ratio between Bray 1 and Bray 2 will provide the best phosphorus availability. Anything above or below these levels will require phosphorus to be applied to correct the lack of available phosphorus.

Special Interest Articles:

- Miller's Miscellaneous.
- What is a Bray Test
- Mehlich Testing
- Turf and Soil Facts
- VERDE-CAL G and Hurricane Sandy
- Show Schedule
- Understanding SLAN

Jim Miller
Sales Manager
843-241-5717

Bo Phillips
Regional
Account Manager
210-382-4079

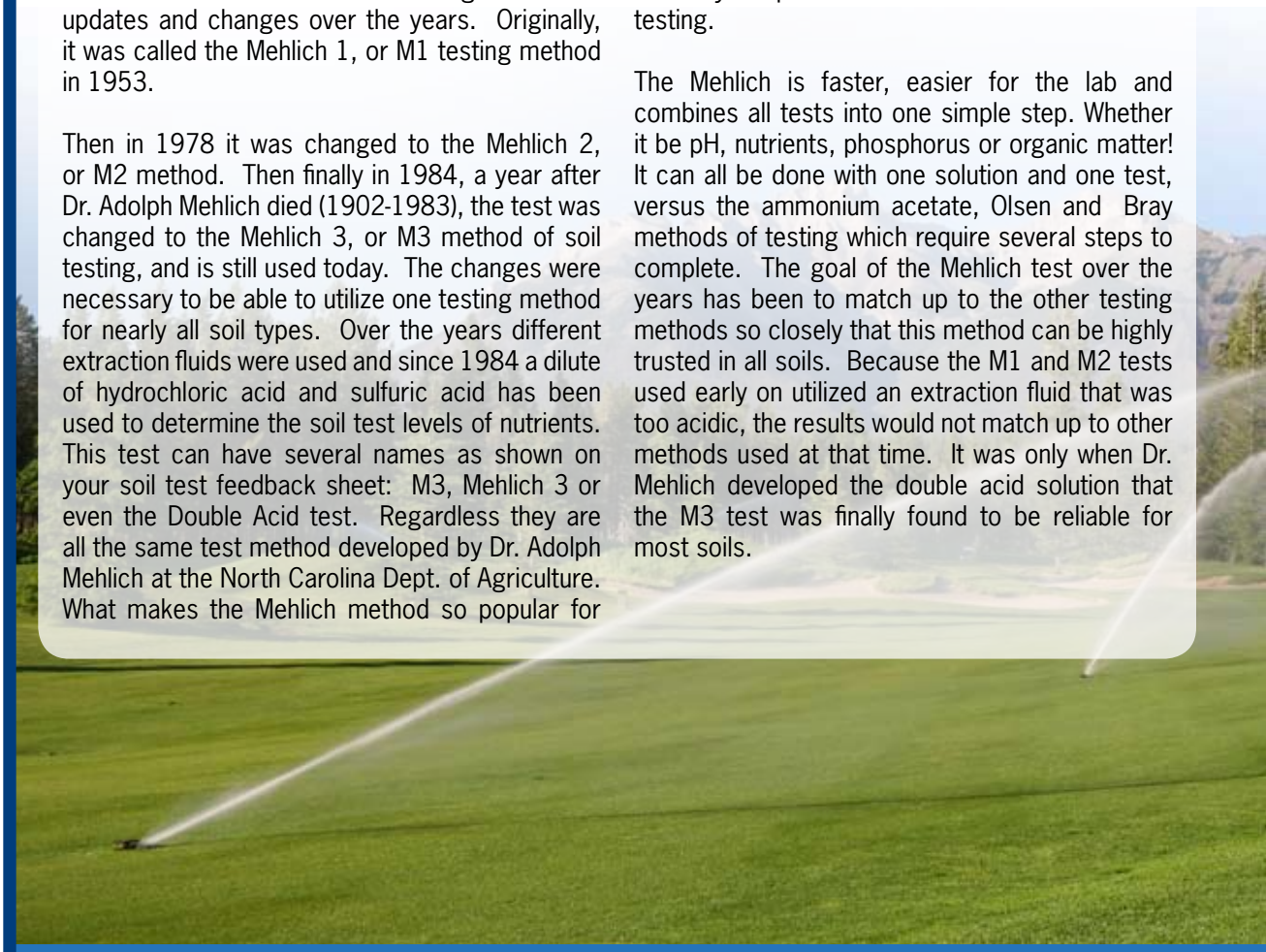
AQUA-AID, INC.
Corporate Office
800-394-1551

Mehlich Testing methods:

The Mehlich method of soil testing has been used since the 1950's. It has undergone several updates and changes over the years. Originally, it was called the Mehlich 1, or M1 testing method in 1953.

Then in 1978 it was changed to the Mehlich 2, or M2 method. Then finally in 1984, a year after Dr. Adolph Mehlich died (1902-1983), the test was changed to the Mehlich 3, or M3 method of soil testing, and is still used today. The changes were necessary to be able to utilize one testing method for nearly all soil types. Over the years different extraction fluids were used and since 1984 a dilute of hydrochloric acid and sulfuric acid has been used to determine the soil test levels of nutrients. This test can have several names as shown on your soil test feedback sheet: M3, Mehlich 3 or even the Double Acid test. Regardless they are all the same test method developed by Dr. Adolph Mehlich at the North Carolina Dept. of Agriculture. What makes the Mehlich method so popular for soil testing labs is that this method of soil testing basically simplifies all the other methods of soil testing.

The Mehlich is faster, easier for the lab and combines all tests into one simple step. Whether it be pH, nutrients, phosphorus or organic matter! It can all be done with one solution and one test, versus the ammonium acetate, Olsen and Bray methods of testing which require several steps to complete. The goal of the Mehlich test over the years has been to match up to the other testing methods so closely that this method can be highly trusted in all soils. Because the M1 and M2 tests used early on utilized an extraction fluid that was too acidic, the results would not match up to other methods used at that time. It was only when Dr. Mehlich developed the double acid solution that the M3 test was finally found to be reliable for most soils.



"Grass is what saves and holds the water that keeps life good and going. It keeps the falling rain from flushing away. Blades of grass take water from air and transpire it into the ground. That works the other way too. Grass blades help put water back into the air so that rain can fall again."

Theodore Roosevelt

Interesting Turf and Soil Facts:

1. There are over 10,000 types of grass in the world! Ranging from turf to rice, sugarcane to bamboo.
2. Parties would be dull without grass. Since most whiskeys, beers and other alcoholic drinks need some type of grass to produce.
3. Grass on the floors of our homes? Ever see Bamboo flooring? Beautiful and in high demand!
4. Turf is the most cost effective solution to wind and water erosion.
5. "Essentially all life depends on soil. There can be no life without soil and no soil without life. They have evolved together." Charles E. Kellogg
6. It takes more than 500 years to develop 2 cm. of topsoil.
7. Scientists have found about 10,000 types of soil in Europe and over 70,000 types in the United States.
8. 1 Tablespoon of soil holds more organisms than there are people on the earth.
9. 15 tons of dry soil matter pass through one earthworm each year.
10. Soils hold 10% of the worlds carbon dioxide emissions

True Trivia!!!

What is the most common "extraction fluid" used in order to test for soil nutrients world wide?

(Answer on next page)

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VERDE-CAL G and Hurricane Sandy

This yard was treated with VERDE-CAL G this year prior to Hurricane Sandy hitting the New England Coast. Salt spray has affected all the yards in the neighborhood except this yard. VERDE-CAL G is tough on salts and sodium in the soil.

"Whoever could make two blades of grass grow where only one grew before, would deserve better of mankind, and do man essential service to his country then the whole race of politicians put together."

Jonathan Swift

"I believe a leaf of grass is no less than the journey work of the stars."

Walt Whitman

2013 Trade Show Schedule:

Canadian Show - Toronto, Ca	January 28 - 29
Virginia Turfgrass Show	January 29 - 30
Golf Industry Show - San Diego, CA Booth# 4222	February 4 - 8
New England Show	March 4 - 7

We are available for seminars and speaking needs for your company. Our talks get CEU points for local and national associations.

True Trivia Answer:

Coca-Cola

This is true because most soil testing is done in agriculture settings (in many third world countries) and performed in many remote parts of the world.

Coca-Cola can be found in all parts of the world and is acidic enough to serve as an extraction fluid.

"Essentially all life depends on soil. There can be no life without soil and no soil without life. They have evolved together."

Charles E. Kellogg

FEED THE SOIL AND THE SOIL WILL FEED THE PLANT.

If you need more literature, please request some to be mailed to you by contacting the following:

maryanne@aquaaid.com
scott@aquaaid.com

Specify how much you need and where to mail it to.

Understanding SLAN:

Recently the USGA had hosted a webcast about soil testing and the push for calcium. In the class the host discussed the "base saturation" test report as being a dinosaur, and that you should really be using what is called a SLAN test instead. He showed a soil test done with base saturation and one with the SLAN test. One showed a need for calcium and the SLAN showed no need at all. So what is the difference? And is there really a need to switch testing methods?

SLAN stands for: Sufficient Level of Available Nutrients. It basically tells you of the base saturation percentage, what is available to the plant. Very similar to a Paste Test. On the webcast they showed a soil test that showed calcium on the base saturation. That same test called for calcium. The same soil tested with the SLAN showed no need for calcium. So which is right? Good question.

The problem here is that the tests are measuring two different things. Base Saturation tests show what has attached to the soil colloid. This test also tells you if you have corrected a problem in the soil. These are all good things to know. The SLAN won't tell you if you have a problem in the soil, only if you have one in the soil solution. Two very different things. Most soil solutions are depleted of available nutrient. The soil balance is important. It tells you how well your fertility program is doing. Is it creating balance? Is it correcting deficiencies? The better it is balanced the better your oxygen/water balance is. This creates better microbial activity, and the list goes on and on.

The main idea here is that a balanced soil means a stronger plant! The SLAN really can't tell you any of these things. Furthermore, there is a need for some of that "4th element" calcium! It is used nearly as much as potassium. And if you have been seeing the trend of pHD's reporting and testing what calcium is capable of doing! Why is it in such demand when your water quality is poor? Why is it needed to keep sodium and high magnesium under control? Why will it keep soil flocculated? Why does it enhance seed/ sod establishment? Don't use it, and you will never know the answers!

Do we condone the use of a SLAN Test? Not exactly. It is a useful tool. However one problem is that the soil solution can change with a good rainfall. So by the time you get results back, are they accurate? It is hard to say. SLAN will show you what is available (from the Base Saturation). And with today's budget crunches, this can help you determine if you are getting your money's worth from your fertilizers. Even this is not a perfect science. What we would strongly recommend instead is to take a periodic Saturated Paste Test. Much like the SLAN, it will show you what is available from the Base Saturation results. We recommend you create a "benchmark" and continue to test the same area about twice each year. Keep utilizing the Base Saturation test, but use the Paste Test to determine availability. This approach gives you a total picture. Try it out, I think you will be pleased and best of all, you have kept a simple task – simple. And keeping track from year to year will be easy.