

# NEWS FROM VERDE-CAL®

First Quarter  
2009

Products of **AQUA-AID, INC.**



## Miller's Miscellaneous

Spring is upon us quicker than ever. Preparations for the new turf season are under way. In this issue of VERDE-CAL news we cover many important matters.

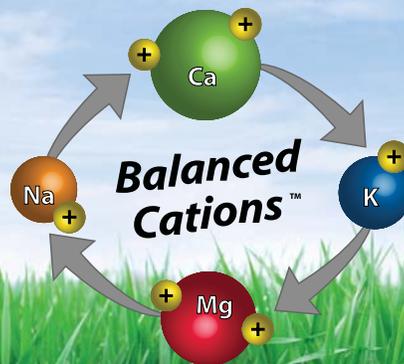
Saturated Paste Tests are an ever more popular tool in really understanding your soil's "true" condition. We explain how to use the Paste Test and why it is something you may

decide is a necessary tool. Tests were run late last year at a golf course in North Carolina to show the advantages of using VERDE-CAL G. Benefits to nutrient uptake and soil balance were monitored. See the results in this article.

Knowing how to use VERDE-CAL and why to use it at specific times can help your customer greatly

improve his fertility program. In this article we show you the most popular ways to use our various products.

Our Featured Products this issue are Salt-Aid™ and Redi-Cal™. These products serve a great purpose and should be strongly considered in your turf management program. Read this article for more details.



## Saturated Paste Test: How to use them.

Standard soil tests are a great start to monitoring your soils. A good standard test should be taken twice per year. To go along with the Standard Test, a Saturated Paste Test (SPT) can complete the soil story.

SPT's start out in the lab along with your soil sample. A slurry much like pancake batter is made from your submitted sample. It is left overnight and then tested the next day for available nutrients. SPT will put the last piece of the soil puzzle together. What we mean by this is a soil test shows the

exchangeable nutrients. It won't show what is in solution or what is available (of the unavailable nutrients) to the plant.

Many times your standard test shows no problems, whereas a SPT will show there is too much in solution. Therefore, some attention should be paid to a problem you don't normally think is there. Not to confuse things too much, but certain parts of the country demand further tests due to regional problems. Drought stricken areas, particularly, should take a routine SPT to monitor salts and sodium. Other

regions that normally show balanced soils should understand that "hidden" problems can be detected with SPT's.

We recommend taking a few SPT's and document those same test areas yearly to monitor your programs accurately. SPT's have been used for more than 20 years or more. It has only been recently that they have made their way into the turf industry with more popularity. Let us know if you are taking any SPT's and if you need help reading the test results.

### Special Interest Articles:

- Miller's Miscellaneous.
- Saturated Paste Test: How to use them
- VERDE-CAL G Testing at Farmstead Golf Club
- VERDE-CAL Application Programs
- Your Soil and Water Source: How different are they?
- More Than pH: Educational Programs
- New Diagnostic Tool

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Hard work spotlights the character of people: some turn up their sleeves, some turn up their noses, and some don't turn up at all.

Sam Ewing

The bitterness of poor quality remains long after the sweetness of low price is forgotten.

Bill Eason

Do not be fooled into believing that because a man is rich he is necessarily smart. There is ample proof to the contrary.

Julius Rosenwald



## VERDE-CAL G Testing at Farmstead Golf Club:

In August of 2008 formal tests were run at Farmstead Golf Club located in Calabash, NC. Farmstead is a semi-private golf club which opened in 2000. Matt Smith is the Golf Course Superintendent. Matt keeps Farmstead in very good condition. Greens are Hybrid Bermudagrass and typically putt like bentgrass. Many tourists don't know the difference. One of Matt's challenges is having poor water quality of his irrigation source. His irrigation source is a mix of shallow well and surface water. When times are dry, the pressure of hard water becomes more of an issue. Because of this, the soils on Farmstead have slowly taken on the characteristics of the water. Luckily, Matt was approved for a water treatment system last year which will help the problem tremendously.

### The Test:

Treat the existing sodium (Na) with VERDE-CAL G on half of #4 green and monitor the leaf tissue as well as soil tests. Soil tests were measured as the "upper 2 inches" and the "lower 4 inches" and were done on each side of the green (treated and untreated). What we hoped to find was a reduction of sodium, more-so on the treated side. Nutrient uptake increased on the treated side. Thorough movement of the product into the soil profile down to 6 inches was tested as well (upper 2 inches, lower 4 inches).

### Procedure:

**August 12:** The forth green was divided in half. Soil and tissue samples taken from both sides. VERDE-CAL G was then applied (12 lbs. per 1000 sq ft.) to the left half and watered in.

**August 19:** Soil and leaf tissue tests were taken from the treated side and the untreated side. Soil tests were taken in the upper 2 inches and the lower 4 inches. Leaf tissue tests (from both sides) were rinsed prior to testing.

**August 27:** The same procedure was repeated. All test data received was documented and compiled into a report. Matt was asked to continue his normal fertility program while the test was run. You may see his program on the compiled data below.

### Results:

As expected, the treated side performed quite a bit better versus the untreated side, both at 2 inch depth and at 3 to 6 inch depth. The most noticeable differences were seen in the leaf tissue tests. Noticeable increases in most major nutrients were seen on the treated side. This shows the VERDE-CAL G releasing unavailable nutrients in the soil and making better use of existing nutrients.

See page 3 for the results of soil and plant tissue testing at Farmstead Golf Club after applying VERDE-CAL G.

**Farmstead Product Testing: cont.**

**VERDE-CAL G Soil and Plant Tissue Trials (2008) - Farmstead Golf Club**

One half of Green 4 was treated with 12 lbs. per 1000 sq. ft. VERDE-CAL G and watered in 10 minutes.

Green 4 has high sodium, bicarbs, high magnesium. Water is questionable. Mixed lake and well water with problems.

**Soil Test Summary**

Date	Location	Percent of Base Saturation for Major Cations						Parts Per Million Micronutrients						Soluble Salts	pH
		Ca	Mg	K	Na	H	CEC	S	Kn	Mn	Fe	B			
Aug. 13	4TU2	75.8	14.9	3.2	6.1	0	3.6	20	6.8	15	74	0.9	0.21	7.2	
Aug. 20	4TU2	81.5	12.7	3.9	1.8	0	6.9	11	6.8	21	70	1.1	0.25	7.4	
Sept. 3	4TU2	75.7	15.4	4.4	1.5	0	2	9	3.9	11	44	0.06	0.1	7.1	
Aug. 13	4UU2	74.1	14.3	3	7.1	1.4	3.8	25	12	31	68	1	0.25	6.9	
Aug. 20	4UU2	77.6	12.7	5.5	4.2	0	3.3	9	10.7	18	67	1.1	0.14	7.4	
Sept. 3	4UU2	76.1	14.5	4.6	1.6	0	3.2	12	8.9	18	61	0.09	0.2	7	
Aug. 13	4TL4	75.3	14.3	4.4	6	0	2.3	14	1.8	5	26	0.6	0.14	7.3	
Aug. 20	4TL4	79	12.9	4.3	3.9	0	2.6	7	1.7	4	27	0.8	0.12	7.6	
Sept. 3	4TL4	74.4	16.1	5.5	1.2	0	1.9	7	1.1	3	26	0.6	0.1	7.2	
Aug. 13	4UL4	75.2	15.2	3.6	5.9	0	2.2	15	3.4	5	21	0.6	0.15	7.2	
Aug. 20	4UL4	75.5	14.2	4.7	5.5	0	2.1	7	1.5	3	25	0.6	0.08	7.3	
Sept. 3	4UL4	76.7	14.4	4.6	1.4	0	2	9	2	3	19	0.5	0.1	7.1	

4TU2 = #4 green treated, upper 2 inches soil profile.  
 4UU2 = #4 green untreated upper 2 inches soil profile.  
 4TL4 = #4 green treated, lower 4 inches soil profile.  
 4UL4 = #4 green untreated lower 4 inches soil profile.

**Plant Tissue Summary**

Date	Location	Percent Nutrient Found							Parts per Million Found						
		N	S	P	K	Mg	Ca	Na	B	Zn	Mn	Fe	Cu	Al	
		4 to 6	.25 to .45	.30 to .60	2.2 to 3.5	.20 to .35	.50 to 1.0	.01 to .03	5 to 25	20 to 60	25 to 60	50 to 500	6 to 10	1 to 300	
Aug. 12	4 Untreat.	3.89	0.38	0.32	0.91	0.14	0.44	0.21	28	48	94	884	19	156	
Aug. 19	4 Untreat.	4.23	0.28	0.24	0.77	0.12	0.41	0.1	11	62	300	1160	119	761	
Aug. 27	4 Untreat.	2.95	0.33	0.32	0.87	0.13	0.34	0.16	4	102	189	1460	208	1290	
Aug. 12	4 Treat.	3.89	0.38	0.32	0.91	0.14	0.49	0.21	28	48	94	884	19	156	
Aug. 19	4 Treat.	4.25	0.31	0.2	1.67	0.15	0.54	0.08	9	63	219	1100	130	706	
Aug. 27	4 Treat.	3.92	0.33	0.23	2.77	0.25	0.87	0.04	3	97	225	2200	276	1630	

Spray Program: The following were tank mixed and sprayed on August 13 and August 29.

Material	Rates per M <sup>2</sup>
13-2-13+Fe	9 oz. Per M <sup>2</sup>
3-21-18+Micros	6 oz. Per M <sup>2</sup>
8-0-4+10%Ca,B,Si	4 oz. Per M <sup>2</sup>
Mg Chelate	2 oz. Per M <sup>2</sup>

Let us learn to appreciate there will be times when the trees will be bare, and look forward to the time when we may pick the fruit.

Anton Chekhov

If you can be consistently late by ten minutes... you can be consistently early by ten minutes.  
David Miller

If you make it plain you like people, it's hard for them to resist liking you back

Lois McMaster Bujold

**VERDE-CAL programs: Smart ways to address key nutrients.**

When considering the diet of the plant, whether cool or warm season, it is important to address the key nutrients both foliarly and granularly. And address these nutrients in a way that will be soluble and available in the soil/plant. Why? Because the plant and soil both have needs for key nutrients. Good granular products satisfy both above and below ground needs. A foliar mostly/only satisfies above ground needs.

Potassium is still used more by weight than all the other nutrients. Calcium is next, and not quite 1:1 with potassium. After that it becomes a race between phosphorus and magnesium and sulfur.

VERDE-CAL products can satisfy nearly all these “key important” nutrient needs with very simple programs. Of course, a good soil test is the best place to start. Taking care of soil problems are key features to VERDE-CAL products. But if there is no soil test, or you need a simple program for your soil situation, take a look at our programs.

Here are some very simple and popular programs:

**Situation:**

**High Calcium - or - High Sodium - or - High Magnesium - or - Questionable water - or - Low Potash**

This program satisfies nearly all the nutrient needs (balance can be attained through your foliar) of potash, calcium, magnesium and sulfur, and maintains balance in the soil.

4 to 6 applications per year depending on length of season		
VERDE-CAL G (start the year)	12 lb per 1000 sq. ft.	10 bags per acre
VERDE-CAL K Plus 0-0-19	5.5 lb per 1000 sq. ft.	4.7 bags per acre
VERDE-CAL K Plus 0-0-19	5.5 lb per 1000 sq. ft.	4.7 bags per acre
VERDE-CAL G	5 to 8 lb per 1000 sq. ft.	4.4 to 7 bags per acre
VERDE-CAL K Plus 0-0-19	5.5 lb per 1000 sq. ft.	4.7 bags per acre
VERDE-CAL G (end the year)	12 lb per 1000 sq. ft.	10 bags per acre

**Situation:**

**Low/Balanced Ca - or - High Hydrogen - or - Low Potash. Adequate Magnesium and Sodium.**

This program will satisfy nearly all the nutrient needs (balance the rest with foliar) of potash, calcium, sulfur, and maintains balance in the soil.

4-6 applications per year depending on length of season		
VERDE-CAL (start the year)	12 lb per 1000 sq. ft.	10 bags per acre
VERDE-CAL K Plus 0-0-19	5.5 lb per 1000 sq. ft.	4.7 bags per acre
VERDE-CAL K Plus 0-0-19	5.5 lb per 1000 sq. ft.	4.7 bags per acre
VERDE-CAL	5 to 8 lb per 1000 sq. ft.	4.4 to 7 bags per acre
VERDE-CAL K Plus 0-0-19	5.5 lb per 1000 sq. ft.	4.7 bags per acre
VERDE-CAL (end the year)	12 lb per 1000 sq. ft.	10 bags per acre

You win some, lose some, and wreck some.

Dale Earnhardt

**FEED THE SOIL AND THE SOIL  
WILL FEED THE PLANT.**

**Your Soil and Water Source: How Different Are They?**

I have read in many books that your soil will eventually take on the EXACT same characteristics as the water you irrigate with. So if you have effluent water that has a high pH, and loaded with Sodium and bicarbonates, then your soil will eventually become a high pH, salty, non-draining mess. On the flip side, if you have a good water source, your fight is usually with maintaining an adequate pH level and supplying available Calcium. I'm going to look at two products that will help with these problems.

**Scenario #1****Effluent water or poor quality water**

Effluent water and/or poor quality water brings a lot of disadvantages. This water source might even be free but after looking at what you have to do to adjust the pH and treat the soil you may be asking yourself, "Just how free is it", "It seems to have cost a lot more than I thought in the long run", or even the worst case, "It cost me four greens and almost my job before I learned how to manage it properly". Because poor quality water is full of unwanted items such as a high pH that raises the pH of the soil, Sodium that destroys soil structure, and bicarbonates that tie up all available Calcium and allows the Sodium in the soil to become the dominate cation, it can be a tricky thing to manage.

There are several ways to combat these problems. The first line of defense is to treat your water before it comes in contact with the soil. Sulfur burners, acid injection, and powdered gypsum injection are all treatment options that work somewhat at best. They all come with some type of downside.

An easier option is to treat the soil with VERDE-CAL G (Enhanced Gypsum) or some other type of granular Calcium application to offset the Sodium. The VERDE-CAL G works extremely well against Sodium pressure versus the traditional Calcium applications, but all of these applications need to be done as part of a strict Calcium regimen to be truly effective. The problem is that these applications get cut out, delayed, or forgotten altogether and that just allows the pressure to mount again.

**Salt-Aid™** was developed to be used as a maintenance spray in between granular applications of VERDE-CAL G. Salt-Aid is a Saline and Sodic Soil treatment (a blend of thCa™ and other organic acids) that has a low pH to buffer, remove Sodium and bicarbonates out of the water in the soil and also work on the soil to reclaim unavailable Calcium cations that push out the Sodium in the soil.

**Scenario #2****Good water quality issues**

If you are one of the lucky ones to be able to use good quality water as your irrigation source, your soil and fertility issues are much less of a headache. Chances are that your soil test actually show all 5 cations (Ca, Mg, K, Na, and H) in the soil. Your soils pH level is probably a bit acidic and you require VERDE-CAL or other granular Calcium applications. The issue here is that the Calcium that your soils and plants require is tied up in the soil or you are applying foliar Calcium to supplement what the plant should be able to take up from the soil anyway! I hear it all the time. Someone shows me a soil test that shows adequate to high levels of Calcium and then show me a tissue test that says the plant is low or deficient in Calcium. HOW CAN THAT BE? The Calcium is unavailable. Most Calcium in the soil requires time (sometimes a long time) to become available. Same thing goes for traditional granular Calcium applications. That's the whole reason VERDE-CAL (Enhanced Calcitic Limestone) was invented, to supply available Calcium to the soil.

We have added another product to the VERDE-CAL line of products called **Redi-Cal™**. Redi-Cal was designed to be used as a maintenance product in between large granular VERDE-CAL applications. Redi-Cal contains thCa™ organic acid that when sprayed every two to four weeks supplies the soil and the plant with a continuous amount of AVAILABLE Calcium. Redi-Cal also contains Calcium Nitrate and has a 6-0-0 8% Ca label.

**Salt-Aid™****Maintenance**

Apply 3 to 8 ounces per 1000 ft<sup>2</sup> in 2 gallons of water (96 to 255 ml per 100 m<sup>2</sup> in 8 liters). Repeat at 30 day intervals, or as needed for specific sodium reduction needs.

**Curative**

Apply 8 to 16 ounces per 1000 ft<sup>2</sup> in 2 gallons of water (255 to 509 ml per 100 m<sup>2</sup> in 8 liters). Begin maintenance program 30 days after curative application.

**Redi-Cal™**

Apply 3 to 6 ounces per 1,000 ft<sup>2</sup> (95 to 191 ml per 100 m<sup>2</sup>) weekly the first month. Follow with 1 to 2 ounces per 1,000 ft<sup>2</sup> (32 to 64 ml per 100 m<sup>2</sup>) at 30 day intervals. Apply with no less than one gallon of water per 1,000 ft<sup>2</sup> (4 liters per 100 m<sup>2</sup>).

**Educational Programs**

- More than pH!
- How to Interpret a Soil Test.
- Nutrients and how to Utilize them.
- Salt and Sodium Management with Calcium

**More Than pH! Program continues its success:**

Many of you know we offer several versions of our popular program called "Beyond pH". This educational program can run forty five minutes up to two hours or more. The program receives both GCSAA and Pesticide CEU's. This winter we completed our 30th state in which we have been asked to speak. Audiences continue to provide positive feedback from the information given. Our goal isn't to cover every

state in the country. Rather, we want to be sure we can provide your next meeting a good, interesting, educational topic. One which they can utilize immediately once your customer returns to the office. Many times customers will put the information to work immediately. This creates a good conversation for your next sales call. Keep us in mind for your next sales meeting.

The way we see it, all of us in the industry, especially on the turf side, should know how to read a soil test. It is interesting to us and it creates better programs for turf management. By understanding how to read a test, you can now begin to use products more wisely. This will eliminate a lot of unnecessary products and expense from your budget. Give Jim or Bo a call if you have any questions.

**New Diagnostic Tool:**

We now have EC meters that our reps can bring to your course to analyze the salt levels in your greens.

These meters can be used for:

- Checking the severity of salts in your root zone.
- Determining where exactly the salts may be in your root zone.
- Checking the soil temperatures in that root zone
- Determining if a product to relieve salts is working.
- Determining how and when to "flush" greens/or other areas.
- Checking irrigation water for salt levels.
- Checking fertilizer solutions for salt levels.



What a great tool and service we can bring to you and your customers. On your next "ride along", mention to us that you would like us to bring the EC Meter with to show some key customers how their soil is doing

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

[maryanne@aquaid.com](mailto:maryanne@aquaid.com)  
[scott@aquaid.com](mailto:scott@aquaid.com)

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