

NEWS FROM VERDE-CAL®

Fourth Quarter
2010

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



Miller's Miscellaneous

Finally fall has arrived! What a tough summer it has been. All parts of the country have really struggled this year. This newsletter is geared toward recovery of turf and root systems.

In the Midwest, Southeast, and Northeast the summer took its toll on Bentgrass in a big way. The success stories were few and far between this summer. And in the deep South excessive

heat was the norm. More so, than normally experienced. Drought periods were tough even on warm season turf.

We have seen many soil tests come in this fall and many turf managers were left in shock at how imbalanced the soils had become in such a short time. How does this happen? Read this article to find out a little bit more about what is happening beneath that turf canopy.

Building the carbohydrate reserves is first and foremost on most minds right now if you are managing turfgrass. Or perhaps you are prepping for overseeding. Regardless, you are hoping for the best results. VERDE-CAL helps with recovery and establishment. Read on for more information about recovery and establishment.

Have a great fall season.

Special Interest Articles:

- Miller's Miscellaneous.
- Excessive Heat and Recovery
- Soil Test Shock
- Plant Needs
- thCa™ Test Results
- Can't Get Results From A Bottle

Excessive Heat and Recovery:

The damage is done. You have lost grass. You have put the plan in place to begin recovery. Don't forget the real home for your new turf...

the soil!

Hopefully you have taken soil tests (read the next article) to determine the state of your new turf's home.

VERDE-CAL needs to be a major product choice when re-establishing the soil balance and providing optimal conditions for newly establishing turf.

After such a long excessively hot summer, your soil needs **conditioning and amending** to allow all phases of soil structure to function properly.

- Microbial activity
- Drainage

- Water uptake
- Compaction relief
- Oxygen/water balance
- Rooting
- Root development

These are factors that have suffered during the heat. Regardless of the soil structure... USGA or Push Up construction... These soil positives are at great risk to be lost during the hot summer months. Add questionable water and salts (read previous newsletters) and the need for VERDE-CAL products is required even more.

Soil test and apply accordingly. VERDE-CAL or VERDE-CAL G are applied from 5lb per 1,000 sq.ft. up to 10 to 12lb per 1,000 sq.ft. Determine the product needed and apply at proper rates. Follow up with another soil test.

Jim Miller
Sales Manager
843-241-5717

Bo Phillips
Regional
Account Manager
210-382-4079

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

What happened to my soil tests?!?!? Soil Test Shock.

This summer we have seen dozens of soil tests that were taken from greens with lost turf. Some of these greens were only partially lost, some were a complete loss. In nearly all cases the diagnosis was not disease! It was simply too hot for too long and the turf grown was not able to hold on long enough. **Of particular interest, was how the soils had changed** from being pretty well balanced in May to being completely imbalanced by early August. In such a short time, how could such imbalance occur?

We have been preaching for years about the importance of properly amending soil. Not just with calcium from VERDE-CAL, but many of the more dominant nutrients virtually get forgotten leading up to the summer. And of course, most of you are foliar feeding through the summer. Refer to the diet chart (below) which has been referenced in previous newsletters. The chart indicates a normal diet for the turf variety being grown. We urge you to take a look at your annual applications of these nutrients and see where you stand. Many of the nutrients cannot be applied solely by foliar spraying. You will have to use granular products to achieve the proper amount. All of these nutrients function together to keep the soil balanced. The biggest problem we have seen this summer with soil tests, is hydrogen, and low pH! The only way hydrogen can dominate the soil is if there is not enough available calcium to keep it from rising on the soil colloid. We have asked the customers what they are doing to maintain soil balance of hydrogen? Most revealed that they are doing nothing at all. And foliar products can't deliver enough calcium in volume to the soil to do any good. The foliar products simply feed the plant when the plant is able to absorb them. Hydrogen

is a problem because as it accumulates in the soil, it bonds with aluminum forming aluminum hydroxide. This compound is toxic to the plant. So in the end... the plant works very hard to grow less! Not a good scenario for turf during the most stressful time of the year. And as hydrogen becomes an excessive problem, other nutrients such as magnesium and potash are driven out of the soil. Calcium, magnesium and potassium are crucial for plant stress resistance and good soil structure.

Most turf managers who had applied VERDE-CAL in July/August reported instant green-up and turf vigor. This is because the volume of available calcium in its correct form was able to condition such things as:

- Hydrogen
- Aluminum
- Sulfur
- Sodium
- Anaerobic conditions
- Compaction
- Tied up nutrients due to these problems

The result was better water and nutrient movement into the plant (see test data next article) The plant responded positively even during high stress. Would VERDE-CAL have eliminated the lost turf damage from the excessive heat this year?

It certainly would have helped keep dangerous soil conditions from occurring which certainly did effect the turf negatively.

Remember... Pencil tines or solid tines in the summer should include VERDE-CAL.

"The secret to being boring is to say everything"

Voltaire

There have been as many great souls unknown to fame as any of the most famous.

Ben Franklin

Visit <http://www.verde-cal.com/east/pdf/testing-brochure-east.pdf> for general guidelines for interpreting soil test results.

Plant Needs of Essential Nutrients:

Annual Nutrient Needs (pounds per acre)

	P	K	Ca	Mg	Mn	Zn	Cu	B	Fe	S
Bent grass	60	160	176	38	.50	.25	0-1	.22	.45	30
Bermuda grass	68	188	200	40	.50	.25	0-1	.24	.50	42
Application Method**	G/L	G/L	G/L	G/L	L	L	L	L	L	G/L

Agronomy handbook, A & L Labs, Midwest Labs

** G = granular L = Liquid or foliar applied

Elements: Mn, Zn, Cu, B, and Fe are believed to be utilized in such small amounts, it is not actually known how much the plant will utilize per year. (Hands On Agronomy, Kinsey, 1999)

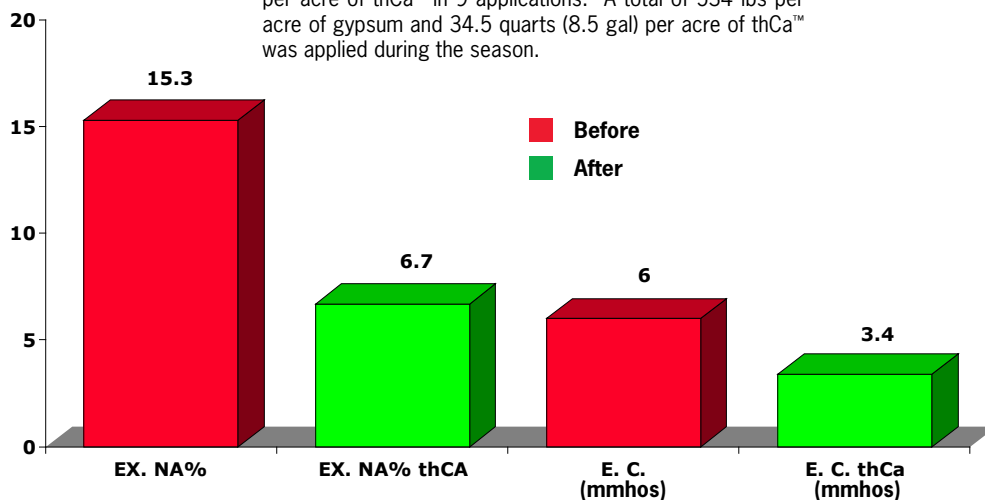
Visit the link below for information about horticultural uses of VERDE-CAL Products.

<http://www.verde-cal.com/east/pdf/verde-cal-horticulture-east.pdf>

Test Results For VERDE-CAL and thCa™:

Effects of thCa™ and Gypsum on Exchangeable Sodium and Electric Conductivity

55 lbs per acre of gypsum by irrigation mixed with 3.5 quarts per acre of thCa™ in 9 applications. A total of 534 lbs per acre of gypsum and 34.5 quarts (8.5 gal) per acre of thCa™ was applied during the season.



Live out your imagination, not your history.
Dr. Stephen Covey

REMEMBER : Aerification is the best time to amend the soil. VERDE-CAL is the perfect product for late summer/early fall aeration.

“Experience is a hard teacher. She gives the test first, the lesson after”.

Unknown

Test Results cont.:

thCa™ Soil Penetrometer Test

**40% REDUCTION OF
SOIL COMPACTION**

UNTREATED

TREATED

(5 gal/a)

(lbs/sq.in. at 6" depth)

70	55
95	85
140	80
55	55
140	70
160	60
125	75
65	65
65	40
95	40
125	65
85	50
TOTAL 1220	
TOTAL 740	
AVG 102 lbs/sq.in.	
AVG 62 lbs/sq.in.	

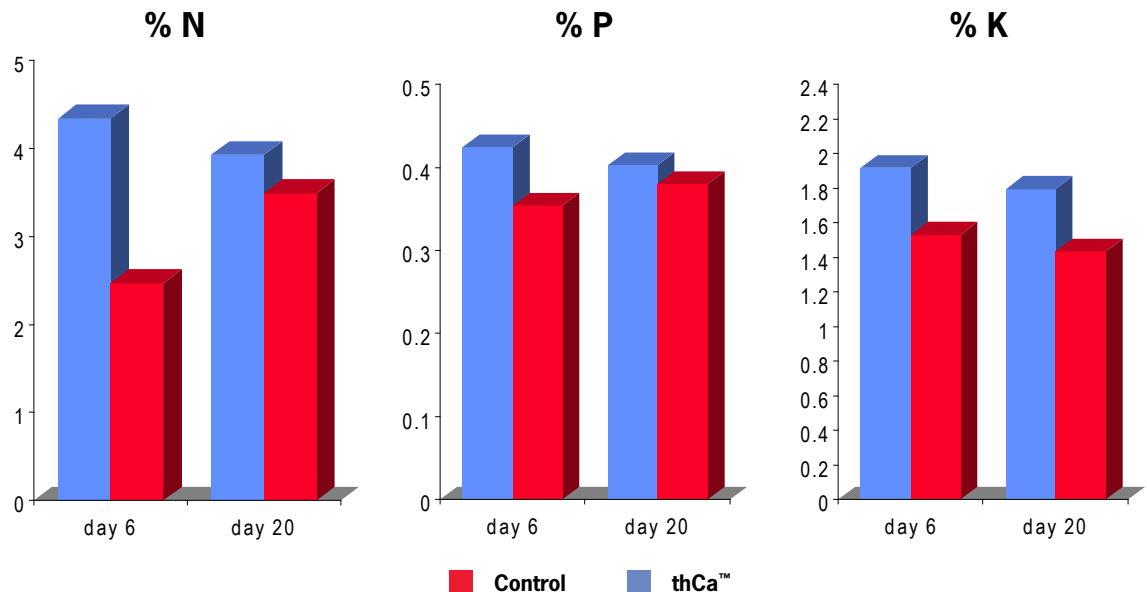
3 replicated plots

"The reasonable man adapts himself to the world; the unreasonable one persists in trying to adapt the world to himself. Therefore, all progress depends on the unreasonable man."

George Bernard Shaw

**Shoot Nutrient Content
at 6 and 20 Days of Heat Stress**

(Creeping Bentgrass)

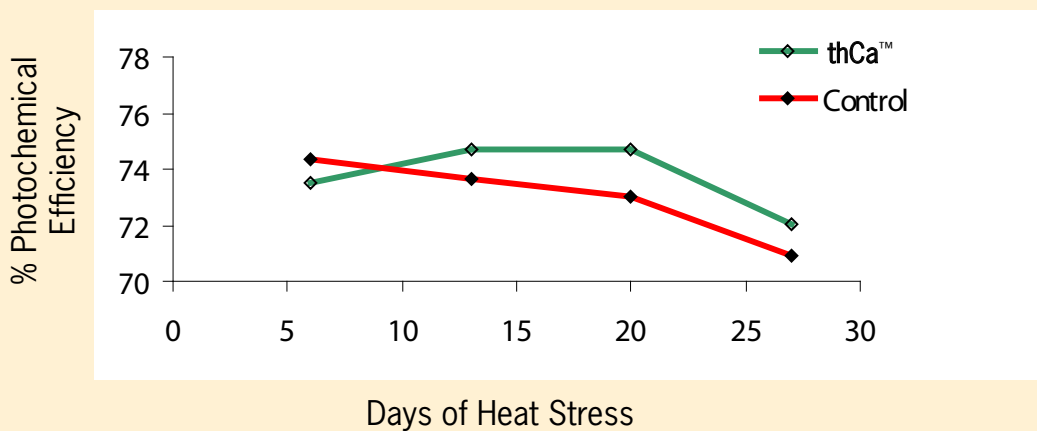


Bingru Huang, Dept. of Plant Pathology, Rutgers University, 2002.

Test Results cont.:

Leaf Photochemical Efficiency Under Heat Stress

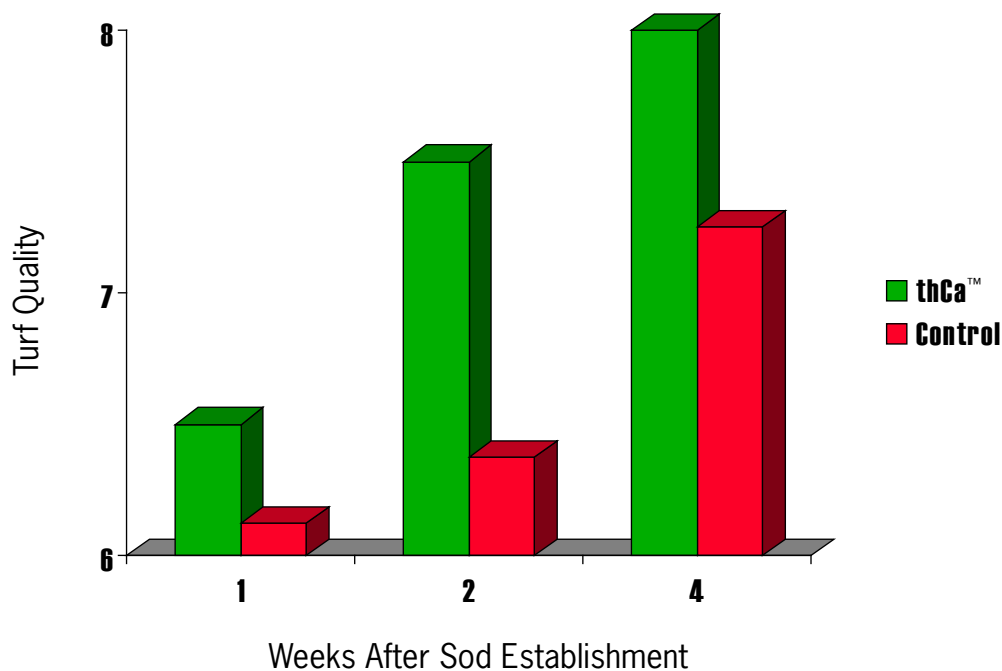
(Creeping Bentgrass)



Bingru Huang, Dept. of Plant Pathology, Rutgers University, 2002.

Turf Quality During Sod Establishment

(Creeping Bentgrass)



Bingru Huang, Dept. of Plant Pathology, Rutgers University, 2002.

Action is the foundational key to all success.
Pablo Picasso

Do you know the difference between education and experience? Education is when you read the fine print; experience is what you get when you don't.

Pete Seeger

FEED THE SOIL AND THE SOIL WILL FEED THE PLANT.

This test data shows that true available calcium can do many more things than hold pH or lower sodium. Those benefits are only the beginning! Turf and ornamentals all benefit from the reaction of VERDE-CAL and its amending power in the soil.

When you have tough soil issues, it is very difficult to claim victory from a product that is applied by foliar means (spraying). These foliar applied products can have some effect, but not long lasting results. And unless a foliar product is unique in chemistry, many of them usually maintain a problem rather than solve it.

As you can see from the data, VERDE-CAL should be a product of priority when the following is needed:

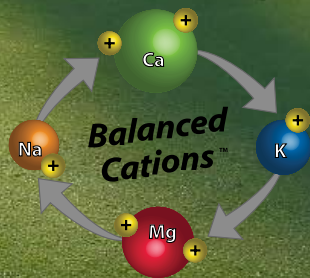
- Turf recovery
- Carbohydrate building
- Overseeding
- Sodding
- Sprigging
- Relieving compaction
- Releasing tied up NPK and other nutrients
- Reducing stress

Good calcium sources are designed to do these things. The problem is, many products

available on the market today don't provide the volume of soluble calcium nutrient needed to achieve these benefits.

VERDE-CAL has always been designed around providing enough available calcium in the correct form. Plus soil penetration so incorporation is easy and thorough. VERDE-CAL satisfies not only the soil needs but also the needs of the plant.

Remember VERDE-CAL not just in the spring and fall, but also in the summer to keep your soil in good condition and your turf and ornamentals in top shape.



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.



800-394-1551

www.aquaaid.com