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Miller's Miscellaneous

I am reading the latest USGA Web Newsletter. At the top, is a story of "Drought Survival in the Southern US". It is a very good article and hits on all the topics that all of us in the turf industry basically already know... such as: water deeply, maximize water inputs, add potash for stress conditioning, minimize cart traffic and so on. We here at AQUA-AID and VERDE-CAL have been preaching water management and nutrient management for a long time.

We put emphasis on why calcium can help especially during a drought!

The USGA makes no mention of this at all, and I guess we understand. They need to keep their information user friendly not just to industry professionals, but also to the greens committee's and various ownerships out there who are also reading. Please read the article about maintaining the soil solution! This article is all about building turf strength!

Also in this edition, you will find a couple of "my favorite" articles from years past. Please enjoy and pass this newsletter along to your customers.

We have recently celebrated our countries 235th birthday. During this time, my family and I enjoyed one of the best firework displays we have ever watched. Before the fireworks, All veterans current and past were recognized, everyone said the Pledge of Allegiance, then we sang the Star Spangled Banner, and all during the display the entire audience (2000 +/-) sang patriotic songs. I had never seen this before during a display, but it was really nice and everyone had a great time. God Bless the U.S.A, and I hope you enjoy this newsletter.

Special Interest Articles:

- Miller's Miscellaneous.
- How Long Can VERDE-CAL Last?
- Summer Survival Kit
- Diary of a Memorial Volunteer
- The Solution to the Solution
- Why So Much Calcium?
- Resiliency of the British Golfer

How Long Can VERDE-CAL Last???

If VERDE-CAL acts so much faster than regular lime or gypsum, then it must not last very long???

We get this comment many times during our travels, and it is a very easy statement to answer. Still to this day, calcium sources unfortunately are incredibly misunderstood. There are a lot of great things about regular lime and gypsum, such as:

- Easy to find/buy
- Can be available at bargain prices
- Great when you need volume of a product in the ground.

Unfortunately these advantages work better in an agriculture setting than in most turf settings. Why? Because as an amendment, calcium must be incorporated somehow into the major part of the soil root zone. This usually means

plowing or tilling in to a depth of about 6 inches. That creates one of the first problems with lime or gypsum when used in turf settings. You can't disturb the surface to incorporate the calcium.

So you need something a bit better.

The negatives of regular lime and gypsum:

- Time and labor
- Incorporation
- Lack of available calcium/release
- Handling
- Dust
- Mower pickup
- And there are certainly more.

Because of these disadvantages, lime and gypsum cannot perform as well as they should in a turf setting.

(Continued on pg.2)

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How Long (cont.)

So the question really should be:

How long does regular lime or gypsum last?

And the answer would be that they will last very long, but release very little. Sometimes this is what you may need, but not always what you may want in a turf setting, especially when your soil tests demand change immediately.

The following case studies will prove that VERDE-CAL is a suitable replacement for lime

and gypsum. These studies also show the duration at very credible locations under everyday growing conditions. Remember the advantages of VERDE-CAL products:

- Less product/handling
- Quicker availability of calcium
- No means for mechanical incorporation
- Melts with irrigation
- Backed by University data and extensive case studies.

Stone Creek Golf Club and the Nike World Headquarters are where the following soil test results came from. As you will see, the longevity is very good and the results are outstanding.

“Courage is being scared to death, but you saddle up any ways”.

John Wayne

STONE CREEK GOLF CLUB Oregon City, OR			
18th Fairway			
		Feb 2009	Jun 2009
	pH	6.2	6.6
TARGET			
68%	Calcium	56.89	64.7
12%	Magnesium	17.36	16.83
5%	Potassium	5.8	5.06
2%	Sodium	2.73	2.06
12%	Hydrogen	12	6

“There are no gains, without pains.”
Ben Franklin

NIKE WORLD HEADQUARTERS Beaverton, OR			
N.N. Jay St. Burm			
		Jan 2010	Oct 2010
	pH	6.4	6.6
TARGET			
68%	Calcium	64.64	67.72
12%	Magnesium	18.07	19.14
5%	Potassium	2.11	2.34
2%	Sodium	1.19	0.98
12%	Hydrogen	9	6

Summer Survival Kit:

Just like the USGA said in their latest web newsletter, "Better add more potash for drought and stress resistance benefits."

We believe you need a couple more beneficial nutrients and ingredients in the soil than just potash. Our K-Plus 0-0-19 has been extremely popular during stress times. Use goes up during the spring and summer months by superintendent's that want to keep very critical nutrients, K, Ca, Mg, S in solution in the soil to better feed the plant. Since we re-formulated this product a couple years ago, feedback has been very good and customer

use continues to increase.

Many turf managers use it monthly at 5.5 lbs per 1,000 sq.ft. Others have seen an advantage in using K-Plus bi-weekly and applying 3 lb per 1,000 sq ft. The K Products we offer include critical nutrients as well as surfactant and organic acids to help the plant take up nutrients and move water more efficiently.

Some turf managers have dubbed K-Plus as the "Tool Box", the perfect product for summer survival!

Invented by
Superintendents
for
Superintendents

VERDE-CAL® K^{PLUS} 0-0-19

Diary of a Memorial Volunteer by Bo Phillips

My 9 days of Fantasy Camp

School is out and summer is in full swing. I try to keep my children busy during this time of year by signing them up for several summer camps and of course the swimming pool is always open to fill the days in between. But this story is about the camp that I went to several weeks ago. Sort of a fantasy camp, I would say. Where some guys would want to go to spring training with their favorite MLB team. Some guys even pay big dollars to suit up for a week with the teams. My fantasy camp week was going to be in Dublin, Ohio at Muirfield Village Golf Club. I was going to volunteer on the grounds /turf crew and work the week of The Memorial Tournament. And boy what a week it was!

Let's start off with a little back story and some facts leading up to the tournament. I am personal friends with the superintendent Lucas Lownes. The reason I stated that first is because it means I'm probably going to get a cushy job assignment (after all it is my summer camp right, I'm not going if I'm going to get a crappy job assignment every morning). I do however have things to do like make sure he is awake in the morning, mow his lawn, let his dog out, and bring him coffee in the morning. Small stuff but he has bigger things to worry about and do this week. I'm just here to help out on making his week a little easier.

PRIOR WEATHER:

February and March 2011

- Rainfall totals 2-3" above normal

April 2011

- 118 year total rainfall record shattered (7.14")
- 19 days of fog
- Fog exacerbated the problem by limiting drying on any rain-free days

May 2011

- Rainfall to date 7.22" (normal to date: 3.07")
- Measurable amounts of rain on 19 of the 24 days this month



A Turf Pathologist was once asked, "Does turf need more water or oxygen"? He answered, "Hold your breath while I go for a glass of water".

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www.verde-cal.com

Volunteer (cont.)

It rained 40 out of the 60 days prior to the golf tournament is what I heard several times. That many rain days mean that sunlight (ya know, the stuff plants use to make food) was hard to come by, and soil moisture levels most days were saturated to the point that even getting out was a problem (that really condensed the schedule of prep days). Three days before I arrived there was a storm cell that dumped .7 inches of rain on the course in ten minutes. Washed out all the bunkers and heavily flooded parts of the course... Oh, and one other little thing, this is the course that Jack built! This is Jack's tournament!

I arrived Saturday evening and was picked up at the airport and couriered over to the course (thanks Justin) by a courtesy van for tournament volunteers (this is a class act run event, there is no doubt). Upon arriving in the maintenance area I noticed that there was already a flurry of people getting things done and some of the guys already knew who I was, where I was from and that I had just arrived (you can't outrun the radio). I quickly learned that the radio was used to its maximum capacity here and the amount of chatter over the airwaves was amazing. People were checking in and posting their status ALL THE TIME. Facebook traffic has nothing on this network! My luggage was put away and I was quickly ushered out onto the course to meet with Lucas. He was meeting on the 6th tee box with tournament event staffers who were installing a public entrance gate. He greeted me with a smile and a handshake then put me to work. We finally left the course at 10:30pm that night. We grabbed something to eat on our way home. We caught up on old times over our fast food meal and then we hit the sack at midnight. He told me to get some sleep and to set my alarm for 4am. That's the type of week it was going to be.

Sunday morning came pretty early. We grabbed a cup of coffee and were at the course again by 4:30am. My first real job duty on a golf course in 15 years (since college) and I was stoked. It's still dark in the early morning, a chill is in the air (and since I live in Texas that was refreshing), I get to tag along with Chris Noble and mow (or at least help) clean-up passes on the greens. We talked about a lot of things as we worked that morning and the thing I took away from our talks is that the guys working at Muirfield are all very serious and dedicated. It's a privilege and honor to work here and if you are not going to commit yourself then you're not going to make it here. After our morning assignments were done Lucas tapped me on the shoulder for a special assignment. He asked me to create three power point presentations that we can use to show the job assignments every morning and evening and

also create two loop presentations of what has been going on at Muirfield Village Golf Club over the past three years. PowerPoint is my thing. Those of you whom have seen me make my presentation in front of a group have surely seen some of my animation magic. So Lucas' request was to the right guy. It took about three hours total. The next job assignment had already started without me. Kevin Cooper was out on the greens finding the flat areas suitable for stimping. My main job for the week was to be on the front side stimp team. Kevin and I found all the stimp area placements and marked them and mapped them for easily locating them in the dark tomorrow morning, after we were finished we did other various small jobs until 9pm. Lucas put the morning schedule together and we were out of there at 10:00pm. Looks like another fast food drive thru!

Monday morning – Practice Round

We woke up at 3:00am and arrived at the course at 3:30. We gave up on brewing our coffee at the house and decided to become friends with Tim Horton's drive thru attendants. Danish and hot coffee that you don't make yourself is GOOD! We open up the shop area and I proceed to make my morning PowerPoint presentation of everyone's morning assignments. Morning meeting at 5:00am and off to work we went. The first time we all went out as a single unit. It was very impressive to see two entire fleets go out and start working on a single hole. At any given point there could have been 20 – 30 guys working on one single hole. Okay, so my job was to stimp before the first cut, stimp after the first cut, and then again after they were rolled. We had three greens



mower teams on our side so needless to say we were busy trying to stay up with all the mowers. After everyone's morning assignments were completed we ate breakfast in the volunteer tent and started looking for another job to do. That's when I met Zach Sowers "Trapper". Trapper had worked at Muirfield for a few years and has since moved to North Carolina but

**How much dirt is in a 2 foot diameter hole that is 4 feet deep?
Hint: There is not much math involved here?**

Answer in next article.

Volunteer (cont.)

he knew the ins and outs of this piece of land and he took me under his wing for the next few hours to work with. We cut some tree limbs, cleaned up a few things, put some things away, and helped some other guys out that needed it. Trapper was a nice guy, and I liked the way he talked (kind of a southern country twang). He showed me around the course again and told a thousand stories of the way a hole used to be, or when a tee complex was renovated, or what the old creek bed had looked like. Man, he had a story about everything. Well actually everyone had stories like that. At least ten or



so stories a piece. It seemed like I was the only one without a historical Muirfield story to tell. After the golfers finished their practice round we went back out for our afternoon assignments. We stimped the greens again just like in the morning. The only difference is that it is now 95 degrees. We finished our duties and did small things to help out around the shop until we left at 10:15pm.

**Tuesday morning
– Practice Round #2**

Tuesday went exactly like Monday. We are starting to get into a schedule. Wake up at 3am get to the course to open it up. Set-up morning PowerPoint, do morning job, come back in, clean up, eat breakfast, do mid-day job, prepare evening PowerPoint presentation, do evening assignment, help get things shut down for the night and prepare for the next morning. We leave the course at 11:00pm. Man am I getting tired.

**Wednesday morning
– Practice Round #3**

More of the same. Wake up at 3am get to the course to open it up. Set-up morning PowerPoint, do morning job, come back in, clean up, eat breakfast, do

mid-day job, prepare evening PowerPoint presentation, do evening assignment, help get things shut down for the night and prepare for in the morning. We leave the course at 10:00pm.

**Thursday morning
– Round #1**

Real deal starting today. Just as the pros had Monday, Tuesday, and Wednesday to practice, so did we. By this time we are all working together in harmony, one team on the front 9 and one team on the back. Today I met and will work the rest of the week with Clay Stewart. He also worked at Muirfield years ago. He now is a superintendent in Kentucky and comes to work the tournament every year. I think this was his 9th or 10th Memorial Tournament, so he knows how things should go. Clay had plenty of stories to tell also. The day went by just as the others did before it. No real difference except the amount of spectators all around.

Friday morning – Round #2

Same as Thursday just more spectators.

**Saturday morning
– Round #3**

The weekend! Nothing changed in the scheduling or the way the day flows, it's just a feeling that you get knowing that the tournament is down to the final days. Play gets intense and the course conditions are still immaculate. Other than that the schedule stayed the same.

**Sunday morning
– Final Round**

This would be the final time that we prepare the course. Nothing major changed except that when you were done with your morning assignment you may be leaving. It was bittersweet finishing up. When we got back into the shop some guys were already in their street clothes, saying their good-byes and heading out. Some driving, some headed to the airport to catch an early flight out. Since my flight didn't leave until Monday I would spend the rest of my day taking a nap. We did get a small rain event. Stopped play for about two hours. We were prepared for the worst (might be napping, but the vehicles and tools were all prepped), the remaining crew was ready to repair bunkers, but it was just a light rain event and some lightning. Play resumed and Lucas grabs me and we're off to the 18th green to watch the winner's ceremony with Paul. It's quite a site to see. The green is full of people. The gallery is covering the slope surrounding the green with the large leaderboard in the

Answer to the riddle:

There is no dirt in the hole! The dirt was removed when making the hole.

Volunteer (cont.)

background. And let's not forget Jack Nicklaus talking to the crowd giving thanks to all those that made the golf tournament happen.

Looking back on my 9 days at Muirfield Village Golf Club I realize that The Memorial Tournament is held there every year. The guys at Muirfield get it done every year like it's just another week. No real super anxiety. Sure there is added pressure but they seem to roll with the punches pretty well! Another thing that I realized is, this may be the most engineered piece of land I have ever seen a golf course on. Lots of things underground, streams and creeks can be diverted, the amount of work that goes into all the golf holes, renovation projects, and even entire holes being constructed (like this year, #16 par 3. WOW, what a golf hole). And lastly, the amount of detail that goes into that place is incredible. Nothing is overlooked, everything is thought of, planned out, and executed with precision. I was very impressed to say the least. This was an experience that I will not soon forget.

I would also like to thank all the people who made this experience a great one. Paul Latshaw- Thank you for such a great week, I learned a lot ("BackTrack" and "Defensive mowing" patterns, "Seal the cut", and

much, much more) and look forward to returning to learn more. Your course is truly amazing and I think it is a reflection of the team of guys you have working on it with you. Such a great group of "TurfHeads" that made me feel at home from the start. Lucas- You're like a brother and all I can say is thank you for asking me to attend. There is no way I can ever do for you what you have done for me, but I'll spend the next twenty years or so trying. Thank you. Rob and Matt- Thanks for the hospitality, comradery, and showing me the ropes. You guys made it easy on me and I look forward to seeing you again. To the team of Stimpers Kevin, Clay, Trapper, Eric, and yes even "Bird" (you know who you are. Get well soon!) Thanks for the experience of a lifetime. I have my own stories to tell now. I hope we stay in touch. I'm sure our paths will cross again. Chris N, Chris F., Rich, Mike G, David L., and all the other MVGC staffers, you guys "bring it" every day and it shows. You should be proud of what you have done everyday, because it is amazing, and beautiful, it's because of you guys and your hard work. You ROCK! And thanks to all the new friends that I made while I was there. We did it all together, working toward one goal.

So, until next year, Adios!

We can not control the evil tongues of others; but a good life enables us to disregard them.

Cato the Elder

"Personality can open doors, but only character can keep them open."

Elmer G. Letterman



The Solution to the Solution Lies Within the Solution:

This article is one I have put much thought into. I actually laid awake in bed last night thinking about this article.

The old adage: "You feed the soil, and the soil feeds the plant", is only half true. As in the previous article, what actually feeds the plant is the "solution" of available nutrients within the soil. So feeding the soil is only a part of the whole picture. What you are feeding and how and when you are feeding is really the big picture here.

Nutrients should be balanced and in ample enough quantity to actually create a solution of availability. The plant will not intercept the solution, the solution must intercept the plant, or plant roots.

So look at your fertility program! Are you foliar feeding when the plant/soil need solution building? This occurs typically in the spring, winter and fall in nearly all regions. Summer can be included as well in cooler

parts of the world where turf can absorb nutrients throughout the day.

When turf is waking up and/or carbohydrate reserves are building up or root development is occurring, this is the time for soil solution management.

Why?

Because at this time it is critical to the plant for strength and chances of surviving harsh conditions. Feeding the soil solution is done by pounds per acre (granular) not ounces per thousand (foliar). Plant diet and soil needs must be taken into account. Plant needs for proper growth and carbohydrate/root and strength start with: Nitrogen, potassium, calcium, magnesium/phosphorus and sulfur, and in this order! Nitrogen is one that can be manipulated, and usually is foliar supplied. However, nitrogen is still very important to the carbohydrate reserve supply. So remember

to use some granular. Typically ammoniacal nitrogen is used to build the carbo's. This should be done more in the fall and winter months to avoid spring excessive growth.

VERDE-CAL products will allow you to feed the soil solution by releasing calcium into the soil profile. Also, by the use of our thCa™ organic acids, the "volume" release of calcium creates availability of other most essential nutrients: K, Mg, Mn, S and P. This makes the plant healthier and stronger. Using VERDE-CAL products in the spring and fall, and typically once or twice per summer, gives a nice soil solution benefit. You can see it in the turf by its response. In hotter climates another application may be needed due to the longer growing season.

When you feed the solution, you feed the plant and the plant grows better!

"In the beginner's mind there are many possibilities. In the expert's mind there are few."

Shunryu Suzuki

"One's dignity may be assaulted, vandalized and cruelly mocked, but cannot be taken away unless it is surrendered."

Michael J. Fox, in
"Saving Milly" by
Morton Kondrake

FEED THE SOIL AND THE SOIL WILL FEED THE PLANT.

Why So Much Calcium?

This past winter I was asked to do a soils presentation for a local Golf Course Superintendents Chapter. After the presentation a professor from a university asked, "What is all the hype about calcium?, And Why so much calcium being applied?"

A great question and one that really needs answering. The perception of excessive calcium applications may be what this professor believes he is seeing. The truth is that calcium is still greatly overlooked as a nutrient that should be applied. And in my travels, maybe 1 in 50 turf managers are applying calcium to the extent that would be considered normal with regards to plant health.

I think the problem is that there are a lot of folks that know very little about the role/function of calcium, and only a handful that really understand what the nutrient is capable of doing when applied correctly. Calcium benefits when applied correctly can include:

- Loosening of the soil.
- Better drainage
- Better nutrient availability
- Proper oxygen and water balance
- Better cell structure in the plants roots/ stems/leaves
- Ability to neutralize toxic substances in the soil and plant.

- Control of Hydrogen, aluminum, sodium and other salts.
- Better water uptake by the plant
- Better microbial function in the soil
- Stress reduction

Is this enough? There are more! There is some data on most if not all of these benefits available. We have published our university data and case studies on many of these benefits here in this newsletter.

By dietary needs, most turf grass utilizes about three pounds of calcium per one thousand square feet per year. (Agronomy handbook)

Add to that the soil need for flocculation and the total is usually around five pounds per one thousand square feet per year of calcium need to properly feed a turf plant.

So to that professor I say... Why so much calcium??? Well because there is certainly a need for it.

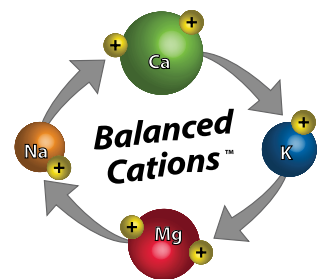
Many of us that understand the role of calcium may wonder: "Why is there so much chemical use? And why a newly diagnosed disease each year?"

Maybe it is due to the plants diet?

Resiliency of the British Golfer

Richmond Golf Club (UK) Temporary Local Rules, 1940

1. Players are asked to collect bomb and shrapnel splinters to save these causing damage to mowing machines.
2. In competitions during gunfire or while bombs are falling, players may take cover without penalty for ceasing play.
3. The position of delayed-action bombs are marked by red flags at reasonable distance, but not guaranteed same distance therefrom.
4. Shrapnel or bomb splinters on the fairway or in bunkers, within a club's length of the ball, may be removed without penalty.
5. A ball moved, or lost, by enemy action may be replaced by a new ball without penalty.
6. A ball lying in a bomb crater may be lifted and dropped not nearer the hole, preserving the line to the hole, without penalty.
7. A player whose stroke is affected by the simultaneous explosion of a bomb may play another ball from the same place. Penalty: one stroke.



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