

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



Miller's Miscellaneous

For some of you, spring has been around for a while now. For others, you may still be waiting for it. Either way, it is upon you or very close and that means the start of a new season. We all hope for better sales with 2010 and I have to think it will be a better year. Hard work last year may have resulted in some frustration, but I think it will pay off now!

In this issue we look at key factors when dealing with carbohydrate reserves such as:

- How do I create release of essential nutrients?
- How do I build up the soil to create more rooting and stronger turf?
- Why is my product choice working or not working?

The answers to these questions will lead you to becoming better salesmen and better fertility consultants to your customers.

Also included in this quarter's newsletter an interesting article about computer use. Please be sure to utilize the links in the articles and margins to provide further useful information.

If you need any literature, you may utilize the links in the margins to help process your needs.

Special Interest Articles:

- **Miller's Miscellaneous**
- **Creating Changes in the Soil**
- **Wrap up Winter Programs**
- **Oxidation**
- **Buffer Index**
- **Where's a Bank**
- **I've Lost my Files**

Creating Change in the Soil:

A soil test shows a problem. Maybe it is a deficiency of potash, or calcium or magnesium? Perhaps it is too much sodium? Too much soluble salt or bicarbonate? Regardless of the issue, amending the soil is how you go about creating change and begin to fix the problem area. Amending soil profiles is all about providing enough availability of a dominant cation that is strong enough to create change. Dominant cations such as calcium, magnesium,

and potassium are the main cations, that when added in enough solubility, can create change in all the problem areas stated in the first couple sentences of this article. Creating change is nearly always done with a granular product. This is because the soil requires pounds per acre and/or volume per acre to create change and this is very rarely provided by a liquid product. When a pH is low, calcium will be low and hydrogen will be high in

nearly every instance. To fix this you need to apply a calcium carbonate product, VERDE-CAL, at a rate high enough to deliver 150 pounds of available calcium carbonate per acre. With VERDE-CAL, a 10 to 12 pound per 1,000 sq.ft. application will do this. Lime rates would be about 4 times or more this rate to come close to the same availability. With the VERDE-CAL application, the volume of calcium is achieved and thorough conditioning of the hydrogen and calcium occur.

Jim Miller
Sales Manager
843-241-5717

Bo Phillips
Regional
Account Manager
210-382-4079

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

Creating Change continued...

When sodium or magnesium, soluble salt or bicarbonate are too high, the plan to create change is similar to that of low pH. In this case **calcium sulfate** is required. VERDE-CAL G would be the product of choice. Calcium sulfate works here (rather than calcium carbonate) because the sulfate form of calcium has no affinity to the soil colloid, so there is more of a scrubbing, feeding flushing affect within the soil. With high sodium or magnesium, or high soluble salt and bicarbonate, it is important to utilize a product that can deliver at least 90 pounds of available calcium sulfate per acre. With this volume, thorough conditioning can be realized and longevity of the application is seen. VERDE-CAL G at 12 pounds per 1,000 sq.ft. works very well. Gypsum would have to be used at 48 pounds per 1,000 sq.ft. come close to the volume of calcium required.

Regardless of the soil situation you have, soluble and available calcium is usually the cure! Remember, it is the source and availability that creates the correct conditioning effect.

If you will remember the critical volume and the appropriate sources to utilize, corrective applications will work so much more effectively. So many times we see products labeled to do something in the soil, and the source is wrong and the rates way too low. When these inferior products are used, you will experience very little change. In fact, most of the time these other products will maintain a problem, not correct it.

VERDE-CAL and VERDE-CAL G... so much more than just calcium!

**Wrap up of Winter Programs:**

This past winter was busy with educational programs. Many topics were covered from Florida to the Mid Atlantic to the Western US.

Topics:

Creating Availability from Un-Available Nutrients.

How to Interpret a Soil Test.

Utilizing your Nutrients.

Understanding Organic Acids.

If any of these topics sound like they would benefit your customer base, please let us know. Attendance was very good and we hope to continue the educational experience.

Thank you to all the distributors and State or Local Associations that sponsored our being there.

“People will forget what you said, what you did, but they will never forget how you made them feel.”

Maya Angelou

“People don’t care what you know until they know that you care”

B. Cronin

Oxidation

Why don't you see a huge response out of Calcium products like you do with Nitrogen, Phosphorous, or Potassium?

Why do superintendents say applying Calcium gives them a "Warm and Fuzzy", comforting feeling?

Why does it take lime and gypsum so long to work in the soil?

ROCKS to POWDER - Some people refer to traditional granular Calcium applications (a.k.a. lime and gypsum) as a third product. What this means is you get 1/3 of the product available this year, 1/3 of the product available next year, and the final 1/3 of the product available the third year. Now that is giving it the benefit of the doubt that it actually is all available in three years. And let's all keep in mind "You get what you pay for". I have seen granular Calcium sell for \$1300 a ton and I have seen it sell for \$85 a ton. Let's also remember that both limestone and gypsum are mined products (rocks), and they need to be processed (crushed into smaller pieces), and then sold as different grades for different uses. Think of boulders to gravel to bb's to talc powder. The more a product is processed (finer grind), the more it costs. This is very important because the finer the product is, the more surface area it has.

BINDERS - Because we don't

like to spread powdered lime we use binders to granulate the product back up to make it easier to spread. Binders and the binding process bring with it another set of problems. Binders are usually some type of water soluble substance that glues the fine powders together. Weak binders tend to fall apart easily and can lead to a very dusty product. Strong binders can have a hard time breaking back down and leave product in balls (or possibly sticky) for a long time allowing the product to be picked back up by mowers.

The binding process uses heat to dry the product down for sizing. If the product is not dried enough, you can get a weak (soft batch) particle that breaks down too easy and is dusty. If the product is dried for too long, you could get a really solid (hard batch) particle that won't break down.

Okay... So to this point, we have mined a rock out of the ground, crushed and ground it down to a fine powder, and then granulated it back up.

OXIDATION - By definition oxidation is a loss of an electron to something else that gains it. Some common examples of this would be a rusty nail. The nail is made of metal and lost an electron to the acidic oxygen around it and that formed rust that will keep stealing electrons until the nail is GONE! Some other examples are paint on your car,

if it isn't waxed or cared for in some way the paint will fade and disappear. Cut an apple and within thirty minutes it starts to turn brown. That is the oxygen starting to dissolve the apple. Even we oxidize. We call it aging, our skin and bodies react similarly to the apple. Calcium becomes available by oxidation. This process is a slow one and that's why lime and gypsum are recommended at such high rates and frequency. You have to add a lot to get a little and then the rest breaks down over time. The smaller the particles are the more surface area there is and the faster the reaction occurs. But it still takes time for it to happen naturally. That's why pH doesn't jump 2 points per application. That's why salt and Sodium is slow to get bumped off the soil colloid.

That's where VERDE-CAL Products come in. Because the calcium in VERDE-CAL products is of the finest grind, and the thCa (organic acid) reacts with the Calcium immediately upon contact with water. (We all played with baking soda (base) and vinegar (acid) as kids to make a volcano (reaction) didn't we? I know that I was not the only one... Well that little experiment is OXIDATION!). Calcium (base) reacts with the thCa (acid) and we create oxidation right now rather than waiting on it naturally. That's why we can do in 2 to 3 months what lime and gypsum can do in 2 years. **We simply speed up the reaction.**

"It is easier to do a job right than to explain why you didn't."

Martin Van Buren

"No day in which you learn something is a complete loss."

David Eddings

"A person will be just about as happy as they make their minds up to be."

Abraham Lincoln

Buffer Index:

*"Laughter is by definition healthy."
Doris Lessing*

From time to time we still get requests to explain buffer index.

Buffer Index is a reference number that you may or may not have on your soil test. The buffer index is determined in one or two basic tests.

The SMP Buffer Test was adapted for soils that can be very acidic... less than 5.8 pH. These soils will typically be less than 10% organic matter contain heavier clays and most likely will have higher aluminum percentages. The Adams-Evans Buffer test is an adaptation of the SMP test. The AE test was created for use with soils more sandy in nature. Coastal soils, golf course soils or just soils very low in organic matter are tested with

the AE buffer test.

Regardless of the testing method, the buffer index is simply a reference number to help you understand the "potential acidity" of a soil. The reference number will direct you to how much calcium carbonate (VERDE-CAL) would be needed to increase calcium pounds per acre and thus increase pH. A typical buffer index will start at a reading of 4.8 and go up to as high as a 7.0. The lower the number, the more product is required to raise the calcium levels. As the numbers increase to 7.0, the rates will be very low. To give you an idea when using VERDE-CAL or Lime refer to the following chart of Buffer Index.

Buffer Index Number	Amount of Lime needed to bring pH up to 6.5	Amount of VERDE-CAL needed to bring pH up to 6.5
7.0	1400 lbs per acre	350 lbs per acre
6.8	2400 lbs per acre	500 lbs per acre
6.6	3800 lbs per acre	500 lbs per acre (soil test for follow up needs)
6.4	6200 lbs per acre	500 lbs per acre (soil test for follow up needs)
6.2	8400 lbs per acre	500 lbs per acre (soil test for follow up needs)
6.0	10200 lbs per acre	500 lbs per acre (soil test for follow up needs)
5.8	11800 lbs per acre	500 lbs per acre (soil test for follow up needs)

"In three words I can sum up everything I've learned about life: it goes on."

Robert Frost

In summarizing the buffer index information, we recommend using 500 pounds of VERDE-CAL to replace the lime required. Instead of over-applying VERDE-CAL, follow up with a soil test and determine if another application is needed. Because you have to incorporate the lime, all of the product should be applied at one time if choosing to use lime instead. The VERDE-CAL requires no incorporation. We see no further benefit of using more than 500 pounds per acre at one time.

Give the product some time to create change, and then soil test and determine how much more should be used. You will find that the VERDE-CAL will work very well over the top and with good growing conditions, you will know your results within one month or so. Remember... even though the buffer index may be high, there is still a need for the calcium and VERDE-CAL. The plant still requires calcium for good growth and the soil requires calcium to remain flocculated and stable.



Where's a Bank When you need one???

Springtime! What a crucial time of the year to need a bank! A bank of nutrients that is! We hear so many speakers use the term, "feed the bank" and we really let the phrase just pass by us without fully understanding it.

To feed the bank is not a simple thing to do. And it requires a bit of thought in terms of cost and plan. However when done with even minimal success, one can experience such turf responses as: increased disease resistance, better wear tolerance, better rooting, better spring greenup, faster playing surface, less wilt, etc. These responses being far better than those you may currently be thinking are the best you can get.

To fully understand what type of bank you have takes a bit of testing. First of all, a paste and accurate soil test will tell you what you are currently banking in the soil. Both tests will tell you what nutrients you have and which are ready to be used. Unless you are feeding the turf with a good balance of granular/foliar products and using good amendments throughout the year, you most likely will have a poor bank balance. Meaning, very little availability of essential nutrients there in solution for the plant to utilize or for the soil to exchange with. Having the bank in good balance is no different than having your own monetary bank account in good balance. More can be done in either case if the balance is strong and healthy! What a great thing. Creating availability at critical times of the year in the bank ensures a great start and finish to any growing season.

Carbohydrate reserve and building the reserve up in the late summer/fall and spring time is very dependent upon the bank balance in the soil. Typically, at these times of the year, soil amending is also popular. Effective amending is key to creating good balance in the soil and fixing any problems that may be inhibiting the bank balance. Be sure you are reading the soil test properly. Know where your problem area exists. If there are problems, fixing them will be "money in the bank" so to speak. Adding VERDE-CAL products at times of soil amending is very much like money in the bank. This is because the available calcium can do many things to build a bank of soluble nutrients with which your turf and soil will perform better:

- Loosen soil
- Water/oxygen balance
- Release nutrients
- Improve drainage
- Improve water uptake
- Improve root/turf growth
- Color enhance
- Wilt reduction
- Nutrient uptake

These benefits are simply provided by amending and maintaining the bank of soluble nutrients. One superintendent compared it to his college experience. When he was in college the fridge was always empty, except for some beer! Therefore he was always hungry. Now years later he has learned to eat better, keep the right things in the fridge so there is always something to eat! His fridge now contains both liquids and solids (granular and foliar). What a great way to look at the turf and soil!

Growing turf and ornamentals is so similar to many other things we do in life.

If calcium is such a key factor to creating release and providing balance in the soil and soil solution, why do we skip the calcium application? The answer is fairly easy. We skip it because of budget, because of traditional sources being ineffective. We truly don't realize that we need it. The real answer is that calcium is still used nearly as much as potash in most turf grasses. Especially cool season turf. Go back and look at the bullet points in this article. Aren't those benefits important? When a customer begins to think "outside the box" or "under the surface" he will tell you all kinds of great things that are happening to his turf. It requires an initial commitment which usually means looking hard at your fertility program and moving some things around. Typically, moving to VERDE-CAL products for soil amending doesn't mean spending more. We usually eliminate an application you were planning to make because the VERDE-CAL can enhance fertility and amend the soil at the same time

Referring to the first article of this newsletter, it is critical to achieve a volume of nutrient per acre to feed the bank properly. Achieve this volume and many other benefits begin to fall into place. If you need further assistance with your program planning, please give us a call.

"Intellectual growth should commence at birth and cease only at death."

Albert Einstein

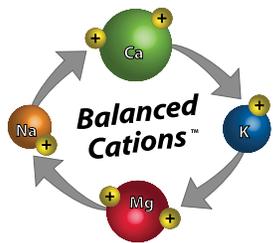
"Nobody can go back and start a new beginning, but anyone can start today and make a new ending."
Maria Robinson

"Don't go around saying the world owes you a living. The world owes you nothing. It was here first."

Mark Twain

*"I arise in the morning
torn between a desire
to improve the world
and a desire to enjoy
the world. This makes
it hard to plan the day."*

E. B. White



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

maryanne@aquaaid.com
scott@aquaaid.com

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

Help I've lost my files:

**LOST.
IMPORTANT WORD FILE.
LAST SEEN ON MY COMPUTER.
REWARD AVAILABLE.**

We've all had that moment. That gut wrenching, sinking feeling of dread, often verbalized by an emphatic "Oh [insert word of choice]!" Your file, the one you were working on for the last few hours, days, even weeks – is gone. Whether it's due to a user error or a computer malfunction, it's painful to lose it. The computer whizzes tell you over and over to save your document every few minutes. But let's be real: once you're in the thick of it, it's annoying to

Stop.
Save.
And start again.

Click the following link to read an article with practical tips for potentially recovering lost or deleted files.

[Help I've Lost My Files](#)



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