

NEWS FROM VERDE-CAL®

Fourth Quarter
2008

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



Miller's Miscellaneous

This quarter's newsletter holds information pertinent to planning this winter and next years programs for your customers. With the rise in nutrient prices, there has been a gradual turn to using more soil amending VERDE-CAL products to help enhance existing fertility. In this issue, you will read how calcium will benefit existing nutrients, as well as those still to be applied. Inventory management becomes

an issue for those of you in the colder climate areas of our country, as well as those abroad. Having to prepare and stock winter used products can have an effect on inventory of other products such as VERDE-CAL. Read this article for more information and how to be better prepared for ordering. Our hard work on improvements to the existing VERDE-CAL product line have finally begun to payoff.

We expect the new generation of calcium to be out and available very soon. Read on for more information.

We have much to offer with VERDE-CAL products. Our growth is a direct result of your dedication and good sales and use.

From all of us at AQUA-AID/VERDE-CAL, we wish you all the best in the coming new year.



Visit us at Booth 2407



golf industry show

Micronutrients and how Calcium effects them...

It is well documented in many publications that balance of the soil's key nutrients benefit all "other" applications. These other applications consist of all other nutrient applications as well as crop protectants. Much emphasis in the soil balance needs to be put on calcium and magnesium. These two cations, being the most dominant, when balanced, will control the state of the soil in terms of overall balance. Percent of base saturations of calcium and magnesium should total 80% and be balanced in a 1:5.5 ratio. Magnesium being the "1", and calcium being the "5.5". If this can be achieved, pH will always balance as well as the other cations, potash, sodium and hydrogen. With the balance, comes the most efficient soil profile

you can have, regardless of the soil type or CEC.

Micronutrients are another area of concern for many superintendents. Refer to the chart at the bottom of this article for the diet of your turf with regards to its need for micronutrients. The general rule is: If micronutrients show up on a leaf tissue and soil test, and not in deficiency, then they don't really need to be applied. In fact the money should be spent on calcium at this point, because a good soil applied calcium program will benefit the release of these micronutrients, thus keeping them free for plant uptake. When calcium and magnesium begin to grow imbalanced, micronutrients show greater imbalance on a soil and/or tissue test.

Special Interest Articles:

- Miller's Miscellaneous.
- Micronutrients and how Calcium effects them
- Inventory Management
- What Exactly is Wilt?
- Happy Holidays

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Micronutrients cont'd...

"If you don't know where you're going, anywhere will do!"

Anonymous

Optimal Cation Balance:

Calcium (Ca)
65- 70 %

Magnesium (Mg)
10 - 15%

Potassium (K)
3 - 5%

Sodium (Na)
1 - 2%

Hydrogen (H)
10 - 15%

"Don't stay in bed all day unless you can make money in bed!"

George Burns

Plant needs of essential nutrients.

Pounds per Acre Annually Needed Nutrients

	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, Fe are believed to be utilized in such small amount, it is not actually known how much the plant will utilize per year. (Hands On Agronomy, Kinsey, 1999)

When considering the diet of the plant for micronutrients, once you go beyond P, K, Ca, Mg and S, the need for real pounds per application becomes less of a factor. Trace minerals, as a rule, are many times more abundant in the soil vs. what a soil test shows. Foliar application of Mn, Zn, Cu, B and Fe are better methods for application. A good calcium program in the soil will enable these nutrients to become free and available to the plant. This will allow foliar as well as soil micronutrients to perform better. VERDE-CAL products can aid tremendously with such a benefit. VERDE-CAL or VERDE-CAL G at 5 lb per 1000 ft² or VERDE-CAL K or

VERDE-CAL KPLUS at 5 lb per 1000 ft² will greatly benefit the release and balance of these micronutrients. VERDE-CAL is also stimulating the plant with PHCA. This will help the plant take up these newly released micronutrients more efficiently.

Are you or your customers using biological products? Here again is another important part of the soil agronomic strategy. If attention to the balance of the five major cations (Ca, Mg, K, Na, H) is ignored and you have a soil imbalance, it will greatly effect the potential of your biological program to work well. Again, the emphasis is put on the Ca:Mg ratio. Being balanced, creating optimal pH and optimal

conditions for microbial products and populations to operate is what VERDE-CAL products will provide. This is clearly explained in the "Hands On Agronomy" book written by Neil Kinsey. He goes on to explain that biological products will not work in a soil too high in calcium or too high in magnesium. This is because the potential for tied up nutrients and tightening of the soil is too great for microbes to function, and react with any biological stimulant. How many times have you tried biological products, but have never seen a program followed through? And so, no results were seen! Next time get the soil balanced and then begin the bio program!



Inventory Management...

Definition: **Inventory**, 1. Merchandise or stock on hand, work in progress, raw materials, finished goods on hand, etc., made each year by a business concern.

Definition: **Inventory Management**, 1. Principles and techniques in managing your inventory.

Inventory management means different things at different levels of any supply chain. But, for the sake of this article, I will talk about topics that are aimed at all levels of the green industry, from manufacturing to end-users. Regardless of where you are in the chain, inventory management is **VITAL** to any successful, profitable business. Mismanagement of inventory has many side-effects from minor headaches and frustration to significant financial loss.

Manufacturer –

Manufactured goods are the beginning of any supply chain. First, there has to be a need (demand) for certain items and the manufacturer has to have a means of producing the items at a low cost, usually because they own a specific machine, process, or production plant that turns raw materials into finished goods (supply). Manufacturers look to maintain raw material and finished goods at levels that are not too low because that would result in lost sales or costly production delays or too high because that would tie up capital and space. Tying up monies can lead to excessive borrowing, interest build-up, and not being able to purchase other raw materials for other products.

Key Items for Success – a **Good Balance** of finished goods, work-in-progress, and raw materials. Always keep **operations** running smoothly.

Distribution –

Distribution is the sales and deliver arm of the whole chain. Distributors have (I think) the hardest role of all. They need to choose the inventories that the end-user wants and needs, or at least have access to it. Try not to duplicate too many like items in their inventory, while keeping overstocks to a minimum. Keep enough inventory in stock to fill existing orders (possibly by multiple customers at the same time). Have enough space to house it all. Have an adequate delivery/transportation system (which is another story all together). Sell the goods, while keeping an eye on sales forecasts. And let's not forget replenishing the inventory in a timely manner.

Key Items for Success – **Plan** – A well thought out basic inventory and levels to match the sales and forecasts. Operations control and management is a necessity. **Communications** between sales, operations, and delivery all have to be in sync. **Turn Inventory** often. **Purchase Power** – Take advantage of “Early Order” discount programs when possible.

VERDE-CAL Edge – VERDE-CAL products can be used all year. Cooler regions usually start early in the year and apply in spring and fall with smaller applications throughout the year. Warmer regions have the possibility to apply all year with an emphasis on the hot summer months. Since VERDE-CAL rates are lower than typical limestone and gypsum rates (on average 500 lbs per acre), less space is required to house them. Payloads of trucks also increase since one pallet of VERDE-CAL product replaces 4 pallets of lime/gypsum. That leaves 3 open pallet spaces for other product to be delivered.

End-User –

This is the end of the supply chain. The End-User or consumer requires an item to do a job. Inventory strategies at this level require careful planning or there is the possibility of downtime. Consumers purchase what they need usually as they need it. Space is usually smaller and monies are budgeted tighter. Of course if the space or budget allows, inventory possibilities can expand.

Key Items for Success – **Evaluate and Plan accordingly** – a mistake in planning ahead causes an emergency somewhere else in the supply chain. **Avoid Downtime** – Time is money, have product **where you need it, when you need it. Have a strong supply partner(s)** – communicate with your vendors and never burn bridges. There may be several suppliers selling the same product. If your preferred vendor cannot fulfill your order in a timely manner you may have to go elsewhere this time. **Purchase power** – again proper planning may allow for “Early Order” discount plans to be passed along which include price reductions and terms of payment.

VERDE-CAL Edge – VERDE-CAL products can be used anywhere because available Calcium is the base of a solid nutrient management plan. Calcium makes other nutrients in the soil more available and work to their fullest potential. Calcium also helps build a stronger, more dense turf that may require less input, such as herbicides, fungicides, insecticides and fertilizers. Make the most out of what you have to work with. It all starts with a strong Calcium regimen. Evaluate your program today!

“I am ready to meet my maker, whether my maker is ready for the great ordeal of meeting me is another matter.”

Winston Churchill

“Never interrupt your enemy while he is making a mistake.”

Napoleon Bonaparte

“Aerodynamically, the bumble bee shouldn't be able to fly, but the bumble bee doesn't know it so it goes on flying anyway.”

Mary Kay Ash

What Exactly is Wilt??? The answer may surprise you!

Monthly applications of VERDE-CAL K^{PLUS} will help keep Apical Dominance from being a problem.

5 lb per 1000 ft² monthly.

FEED THE SOIL AND THE SOIL
WILL FEED THE PLANT.

Ask yourself, "What is wilt"? Can you answer the question. This is a problem all of your customers have, but we find ourselves perplexed with an answer.

Wilt is the most severe form of what is known as apical dominance. Apical dominance is typically a term used in agriculture. It can occur on any type of crop, but is seen most in crops requiring calcium for proper growth. Tomatoes are a very good example, as they require proper calcium to prevent end rot. When have you seen a tomato plant look great one day, then the next most of the fruit is laying on the ground? This is apical dominance in the plant. Turf is no different in its need for calcium. **Refer to the calcium diet in the chart above. You will see, turf should be 1:1 between K:Ca.** Apical dominance can occur at various stages in a plant and also as a plant grows. When calcium is pulled out of the calcium glucose (the glue that holds the cells together), the plant collapses. Everything past that point will wilt. The calcium is pulled out of the glucose because there is a need (because of the lack of available Ca) for calcium somewhere else in the plant. Apical dominance starts at the top of a plant and works its way downward to the crown. Once at the crown, the plant will not produce any more growth beyond that point, and wilt will re-occur over and over again. Water and nutrients are typically added to try to reverse apical dominance, but these can't "flow" past this "blockage" point, and so the plant cannot recover. Thus you get wilt, and/or re-occurring wilt. Does this sound familiar? Various stages of apical dominance can exist, and a plant can sometimes be "sustained"

long enough that new leaves will replace the damaged or dead leaves. The best way to prevent apical dominance and the only way to cure it is with the soil percentage of base saturation of calcium to be in the proper range and/or have available calcium ready for plant uptake. As spoken by a Professor at Mississippi State, "It can't be solved with foliar calcium". "The use of available soil applied calcium is the only way to correct this". This is because foliar application won't get below the point of collapse. So it must be done from the soil up. Superintendents using VERDE-CAL products as a monthly program will report that wilt has become less of an issue, and they never experience "severe wilt".

VERDE-CAL K^{PLUS} is a great fit for this purpose. Used monthly, the VERDE-CAL K^{PLUS} can greatly influence the needed diet of the plant for calcium as well as potash and magnesium. With calcium, potash and magnesium in line and balanced the plant will grow stronger, and calcium glucose will never be jeopardized causing apical dominance or wilt!

You should take a good look at the nutrient diet and ask yourself, "How am I amending calcium?" If it is by foliar means, you will need to change your thinking a bit. Look at reducing the foliar calcium and increasing the soil applied calcium through VERDE-CAL, VERDE-CAL G or VERDE-CAL K^{PLUS}.

A maintenance program with VERDE-CAL products will easily manage your nutrient need for Ca, Mg, and K. The nutrients delivered will last longer and benefit the plant far more than any foliar program of the same nutrients.

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.

*We would like to
wish you a very
Merry Christmas
and a Happy New
Year!!!*



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