

NEWS FROM VERDE-CAL®

First Quarter
2015

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



Miller's Miscellaneous

Happy New Year to everyone. We are all off and running into this new year.

In this quarters issue of Verde-Cal news I have included several items of interest.

Welcome to all the European countries! We hope you enjoy this newsletter. Read all about

our introduction into Europe.

We have recently launched upgrades to our product line! Read about this and view a video showing these newest improvements to particle size, solubility and nutrient content.

Liming! Here is a great article re-written from the Tennessee

Turfgrass Magazine October/November issue. Good information to get you thinking about the upcoming seasons.

I hope this newsletter finds you all doing well in the new year. Please pass it along to your colleagues as you see necessary.

Verde-Cal Upgrades to Product Line

We are proud to introduce our newest upgrades to the Verde-Cal Product line. Officially marking the current upgrades being available now worldwide, users of Verde-Cal Products can now experience the following improvements:

Verde-Cal G:

- improved particle sizing now available as: Sgn 80-85 Sgn 160 Homogenous
- More consistent particle shape and distribution through spreading equipment
- Soluble within one minute. Typical 4-6 minutes of irrigation. Product will become a solution even with cold water.
- Improved nutrient analysis. Now providing up to 23% calcium.
- No mechanical incorporation needed to enter into the root zone due to the thCa exclusive chemistry.

Verde-Cal K Plus 0-0-15:

- Improved particle sizing now available as: Sgn 80-85 only. Homogenous
- Only product on the market containing the following:
 - Enhanced Calcium with thCa
 - Potassium Sulfate
 - Magnesium Sulfate
 - Manganese Sulfate
 - Iron Humate
- A full package of L Amino Acids
- thCa exclusive chemistry

Both product improvements have been overwhelmingly accepted by turf managers all over the world. The Verde-Cal G is so soluble now that very quick knockdown of sodium and water related issues can be experienced within 24 to 48 hours after application. What is really nice about both Verde-Cal K Plus and Verde-Cal G now is that even with cold water the products will dissolve quickly. Our manufacturing process now allows for more of a "round" particle that comes out cleaner and spreads beautifully.

The L Amino Acids in Verde-Cal K Plus 0-0-15 really make it the complete product. Uses range from simple maintenance, to supplementing dominant cations when dealing with water issues.

Verde-Cal K Plus 0-0-15 is soluble with minimal water and basically "chelated in the soil". The L Amino Acids are a complete package of 18 total. The L Amino technology really helps uptake and increased turf strength and vigor.

Verde-Cal K Plus 0-0-15 also now has smoother rounder particle size and shape allowing for a cleaner, better spread pattern and water breakdown.

Refer to the video link below for a great explanation of these benefits to both the Verde-Cal G and the Verde-Cal K Plus 0-0-15.

http://youtu.be/3Q_E65fUjBY

Special Interest Articles:

- Miller's Miscellaneous.
- Verde-Cal Upgrades
- AQUA-AID Europe
- True Trivia
- Liming Soils

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Welcome European Markets!

AQUA-AID, a leading manufacturer and supplier of (bio) surfactants and wetting agents for the Turf Care industry has opened its new distribution network for the European, Middle East and North African (EMEA) Market.

Operating from the south of The Netherlands between two harbours Rotterdam and Antwerp, AQUA-AID is centralizing the supply chain within the EMEA with goods sent direct to distributors and end-users.

Hans de Kort, former director of turf and agricultural machinery manufacturer Imants BV is appointed as Managing Director to lead the EMEA operations.

His background in the sports and general turf industry as well as previous experience in logistic supply chain management in the automotive industry will help the European operation to be more cost effective and lean.

"I have worked closely in sports turf management and maintenance for many years on a global scale and have seen



Hans de Kort

first-hand the unique qualities of AQUA-AID's product line. Products like OARS, Verde-Cal and Turf Screen, which are already established and well known in the market place," De Kort said.

"This, plus the excellent rapport I have developed with the owners of AQUA-AID through my work made the decision to join them an easy one to make.

"My intention is to develop the market for AQUA-AID in Europe and in particular the UK. The

knowledge and understanding of this type of soil structure and surface maintenance in the UK is unrivalled and I intend to supply the products that deliver results."

Sam Green, Business Development Director for AQUA-AID praises Hans de Kort for his outstanding background and skills and welcomes him to the worldwide AQUA-AID team. "Hans's resume speaks for itself. We believe that with his drive he will deliver a new and greater level of service and performance to our worldwide customers." Green said.

Hans de Kort is looking to create a line of supply and distribution in the UK, by joining forces with companies supplying complementary products or individual dealerships.

Hans de Kort can be contacted via mobile +31 651237075 and email him at hans@aquaaid.eu

AQUA-AID: www.aquaaid.eu

"You can bury freedom, but you cannot kill it."

Taylor Jackson

"We know more about the movement of celestial bodies than about the soil underfoot."

Leonardo da Vinci

True Trivia: Secrets in the Soil

1. Soil is made up of:

A: 25% minerals,	30% water,	15% organic matter,	30% air
B: 45% minerals,	25% water,	5% organic matter,	25% air
C: 15% minerals,	30% water,	35% organic matter,	20% air
D: 55% minerals,	20% water,	15% organic matter,	10% air

2. Every 1% increase in organic matter results in as much as _____ gallons of available soil water per acre.

A: 25 B: 250 C: 2,500 D: 25,000

3. Earthworm populations consume _____ tons of dry matter per acre per year, partly digesting and mixing it with soil.

A: 1/2 B: 1 C: 2 D: 4

Answers on page 4.

Liming Soils: Good Information to Remember

I had the pleasure of teaming up with Dr. Tom Samples many years ago at a Tennessee Turfgrass Conference. Together we discussed soil chemistry and nutrient interaction and topdressing choices. I recall it was a great seminar and the room was full. At one point a representative from the Grand Ole Opry Hotel came in and said, “no more people could come in” due to fire safety rules.

The following article was written by Dr. Samples, Ph.D., John Sorochan, Ph.D., Jim Brosnan, Ph.D, Hugh Savoy – Bio systems Engineering and Soil Science Dept and Alan Windham, Ph.D from the University of Tennessee.

So you have read our articles and heard us speak about soils and balance of nutrients and the importance of calcium! No you can read what they have to say.

Although much of this information is repetitive, it drives home a strong point! Soil Balance is Important.

Read on...

The Importance of Liming Acidic Soils

By Tom Samples, Ph.D., John Sorochan, Ph.D., and Jim Brosnan, Ph.D., Plant Sciences Dept.; Hugh Savoy, Biosystems Engineering and Soil Science Dept.; and Alan Windham, Ph.D., Entomology and Plant Pathology Dept., The University of Tennessee

Unless lime is applied, many Tennessee soils in which turfgrasses are maintained become acidic. Soil acidity increases as turfgrasses remove calcium (Ca), magnesium (Mg) and potassium (K), or as the nutrients move in water (leach) below the turfgrass rootzone. **Nitrogen (N) fertilization, and collecting and removing grass clippings, can also result in acidic soils.** As the total amount of acids in soils increases, several essential nutrients change form and are no longer available to turfgrass plants. The activity of many species of beneficial microorganisms in soils may also slow.

Soil pH

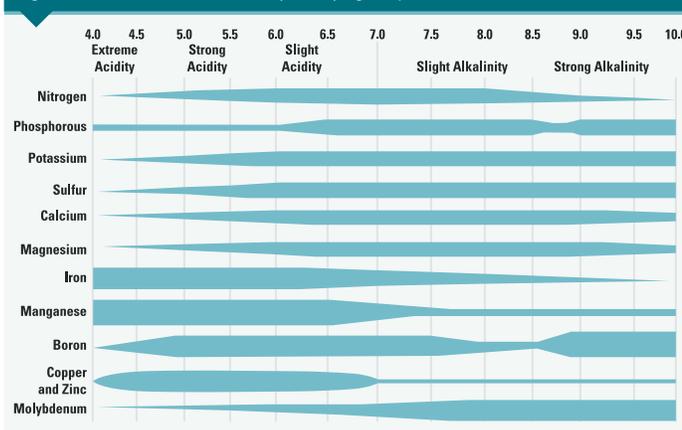
The term pH is a notation used to designate the level of acidity or alkalinity of a soil, where p represents “potential,” and H represents hydrogen. When subjected to a soil pH test, strongly acidic soils yield very high levels of H or aluminum (Al) ions. Soil with a pH below 7.0 is acidic, and above 7.0 is alkaline. Soil with a pH of 5.0 is 10X more acidic than the same soil with a pH of 6.0 and 100X more acidic than the soil with a neutral pH (pH = 7.0).

The amount of lime needed to neutralize the acids in a soil depends on the soil's pH and the ability of the soil to resist (buffer) a change in pH. Clayey soils have a greater buffering capacity than sandy soils.

Availability of essential mineral nutrients

In native soils, the essential mineral nutrients are available for uptake by turfgrasses when the soil pH is slightly acidic (ranging from 6.0 to 6.5). Soil with a pH of 5.5 or less may be very low or deficient in Ca, Mg and phosphorus (P), yet may contain excessive Al and manganese. See Figure 1 for more information about nutrient availability in soils of varying pH.

Figure 1. Relative nutrient availability at varying soil pH values.



Turfgrass weeds and diseases as indicators of soil pH

The presence of several broadleaf weeds including cinquefoil (*Potentilla simplex*), ground ivy (*Puccinia glechomatis*), sheep sorrel (*Rumex acetosella*) and Shepherds purse (*Capsella bursa-pastoris*) may indicate low soil pH and a high level of soil acidity. Conversely, the presence of common plantain (*Plantago major*) may indicate that the soil is alkaline and has a relatively high pH. Similarly, the fungal diseases Fusarium patch, spring dead spot, summer patch and take-all patch can be much more severe when turfgrasses are growing in alkaline soils.

“The early bird may get the worm, but the second mouse gets the cheese.”
Anonymous

“A day of worry is more exhausting than a week of work.”

John Lubbock

Liming Soils (cont.)

**“Talent is God given.
Be humble. Fame is
man-given. Be grateful.
Conceit is self-given.
Be careful.”**

John Wooden

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

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.

Soil pH testing

Soil testing is a key to determining when it is necessary to apply lime and the amount of lime to apply. A glass electrode is used to estimate the pH of the soil sample. De-ionized water is added to dry, pulverized soil before measuring the level of acid in the soil sample solution. The pH of this solution is often reported on the soil test result form as Water pH. Water pH is used to indicate a need for lime. The amount of acid held (adsorbed) by clay and organic matter in the soil sample that must be neutralized is often reported as Buffer pH.

Liming materials

Agricultural or ground limestone is the main source of lime for turf applications. Agricultural lime is marketed in either calcitic or dolomitic forms and is sold in bulk or bags. The most common form of bagged limestone is dolomitic. Calcitic limestone contains mostly Ca carbonate (CaCO_3), while dolomitic limestone contains both Ca plus Mg carbonates ($\text{CaMg}(\text{CO}_3)_2$).



Photo 1. Pelletized dolomitic limestone

Particles of ground limestone are often compressed to form larger granules or pellets. Although pelletized lime is usually much easier to apply, if the lime pellets do not break down quickly once they contact rain or irrigation water, their effectiveness in raising the soil pH may be reduced. Pelletized lime may require more time to raise the soil pH of the turfgrass rootzone than ground limestone.



Photo 2. Bagged pelletized dolomitic limestone

Role of calcium and magnesium in turfgrasses

As part of the cell walls and membranes, Ca contributes to overall plant strength. Calcium is also required in order for cells to divide and expand.

The amount of Ca^{2+} in the soil solution surrounding turfgrass roots influences the amount of K and sodium (Na) cations a turfgrass plant absorbs. For example, when the solution is low in Ca^{2+} , the amount of K^+ and Na^+ absorbed is often very similar. However, when the supply of Ca^{2+} in soil solution is adequate, much more K^+ is absorbed than Na^+ . Calcium also improves the uptake of nitrate

N (NO_3^-).

Magnesium is part of the chlorophyll molecule and is critically important for photosynthesis. The plant's ability to produce proteins and transfer energy from one plant part to another is affected by Mg. An adequate level of Mg also improves the uptake of P from soil.

Application timing

Although late fall is preferred, lime can be applied to turf any time during the year. Rotary (centrifugal) spreaders are commonly used to apply pelletized lime, while pulverized lime should be applied using a drop- or gravity-spreader.

When establishing turfs, the total recommended amount of lime can be broadcast and tilled into the soil before planting. In established turfs, no more than 50 lbs. of lime should be applied per 1,000 ft^2 . For example, if soil test results indicate the need to apply a total of 150 lbs. of lime per 1,000 ft^2 , 50 lbs. per 1,000 ft^2 can be applied on 6-month intervals such that 50 lbs. per 1,000 ft^2 is applied initially, an additional 50 lbs. per 1,000 ft^2 is applied after 6 months, and the final 50 lbs. per 1,000 ft^2 application is made 1 year after the initial application.

Liming acidic soils most often results in healthier turfgrass and reduces the need to supplement those mineral nutrients that were once unavailable to turfgrasses.

True Trivia: (answers)

1. B
2. D
3. C