From the Ground Up

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Fertilizer Economics 101.

Many farmers have been diagnosed with "sticker shock" this fall and winter as they have gone shopping for crop inputs. Fertilizer prices have more than doubled since two years ago. Remember though to compare the ratio of fertilizer price to your price per bushel. If nitrogen was at $0.30/lb when the corn price was $2.00 the ratio would have been .15. Now that corn is priced at $4.50 per bushel an equivalent nitrogen price to corn price ratio would mean that the nitrogen price would be $0.675/lb.

It is difficult to come to terms with the increased costs, but we still need to manage our fertilizer programs with the "return on investment" not by our check book. Nitrogen still will give you your biggest returns for the dollar spent. Be sure you don't fall short. Risks are greater when you are working with greater budgets, but understand that with greater risks brings greater rewards.

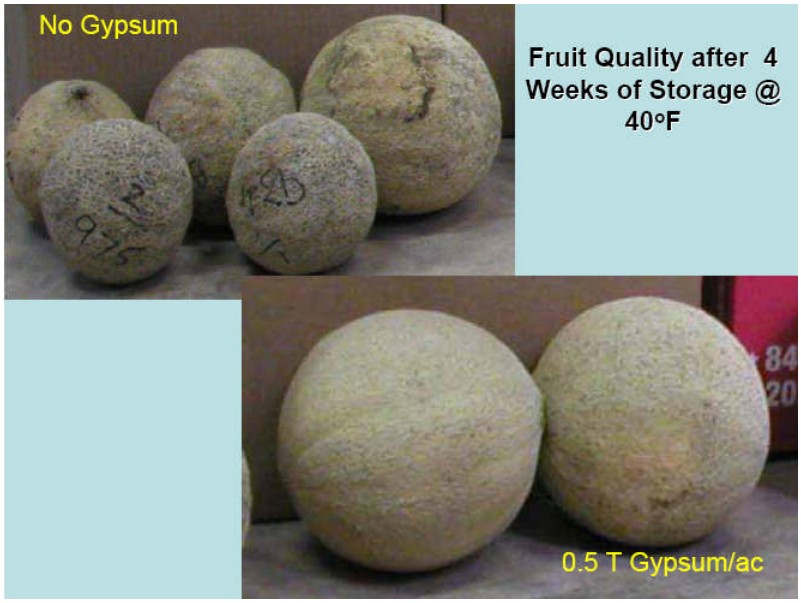
Some things you can do to manage your nitrogen program is to give credit to residual soil nitrogen, split apply nitrogen applications, inject or dribble your nitrogen to reduce tie up with the crop residue, use a balanced fertilizer program so that other nutrients won't limit your response to the nitrogen applied and use realistic yield goals in determining your nitrogen rate.

One input that hasn't increased in price this year is PRO CAL 40. It is now a better buy than ever. It has also been shown to improve your response to nitrogen and make many of the soil nutrients more available. Most of our past clients have recognized this and have made sure that we try to get to their fields this winter. We are making every effort to get all of the acres covered.

Gypsum Improves Quality Also

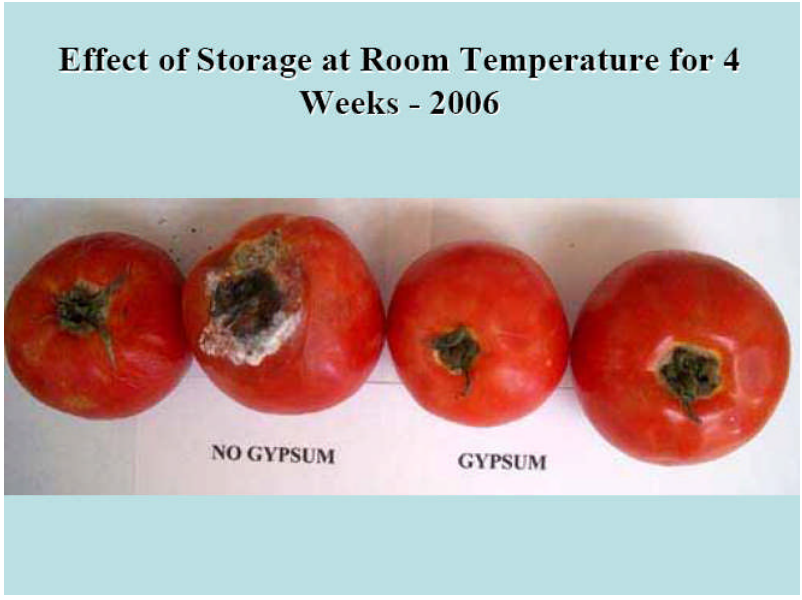
We do often get questions about the affect that PRO CAL 40 and gypsum has on quality of crops. The majority of our product is applied to fields that grow grain crops, however, we have a growing number of clients in the vegetable and produce business. Yields are improved with the use of gypsum as is shown in the yield data on cantaloupes below, but the quality and storage of these produce are also improved with the use of gypsum as is shown by the pictures of cantaloupes after four weeks of cold storage. Most of this can be credited to better calcium nutrition resulting in better cell structure. Notice the increase in skin calcium levels where the gypsum was applied.

Treatment	Yield, T/A	Skin Ca %
Control	2.99	1.07
Gypsum (.56 T/A)	4.54	1.24



The same can be seen in the yield data and pictures concerning tomatoes. Less blossom end rot will be observed where gypsum is used in tomato production also. Notice again that the skin calcium was also significantly elevated where the gypsum was applied.

Treatment	Yield, T/A	Skin Ca %
Control	26.5	0.21
Gypsum (2 T/A)	37.5	0.34



How does this relate to grain crops and grain storage? It is most likely that grain quality can also be affected the same as vegetables although it is not as critical in the short term. Grain quality considering feeding values may be enhanced as well. We do know that hay quality can be enhanced with the use of gypsum as has been demonstrated on our farm as well as our customers' farms.

Gypsum Improves Drainage Without Tiling

In a recent conversation with a Cooperative Extension Specialist I was questioned about the use of gypsum to improve drainage without the presence of drainage tiles. It is true that if springs are present or if the water table is very high, tiling is necessary to provide a conduit to lower the level of water and drain the water off site. However, we have found that in many soils the surface structure has deteriorated to the point that the surface is sealed off. When no air is allowed to enter the pore space from above a vacuum is formed and the water will not drain away very quickly. It is like placing a thumb on top of a drinking straw. The water will not drop from the straw even though there is nothing at the bottom to prevent it from falling. In soils like these a tile will not be necessary to improve the drainage. Simply by applying gypsum and improving the calcium level and reducing the swelling of the clays we are able to increase infiltration and percolation in these soils.

> Like placing a thumb on a drinking straw, water will not drain.

In some soils where tiles have been placed, but are no longer working we have had incidences where simply by applying gypsum to these soils the tiles began to drain again. This is again the same concept…..take the thumb off of the straw and the soil will drain.

Soil Tests—A Trustworthy Management Tool

It is true that a growing amount of producers are relying on soil tests to make their management decisions and some have moved to precision soil sampling either by grids, soil types, yield maps or a combination, but I am amazed how many producers do not have up to date soil tests.

I find that most of these producers either don't know how to interpret the analyses or have a conception that the recommendations are the most important part of the soil test, but cannot be trusted to be accurate.

Just as in the medical field there are doctors with different diagnoses and prescriptions so it is in the agronomic and soil fertility profession. Most importantly understand that there are different analyses and procedures used among laboratories today and so interpretation will vary depending upon what analyses the laboratory is running. Some labs have changed procedures recently so the numbers may change from last sampling period, especially if you don't routinely sample.

Don’t discredit the whole soil test industry because of differences among the procedures or even among recommendations. Instead, endeavor to understand the soil analyses better and understand the correlations among the analyses.

Recently I visited with an individual who was discrediting a particular laboratory because the numbers looked different than what he was used to, however, the soil was a soil that had been dug from a hill and was essentially fill soil. He had no baseline for this soil and no baseline for criticizing the accuracy other than it was different than what he was familiar with.

Proper procedure if you question any results from any laboratory is to call them and have the lab retest it. Most labs will do this for no charge. If the results come back essentially unchanged, and you are still not convinced that they are correct, take another sample from the same field and/or area and let the lab know that it is a retest. Again, most labs will offer this at no charge. If these results are similar then I think you probably need to accept the results as accurate at least given the procedures that the lab has in place.

Soil test laboratories, in general, have quality control measures in place and are producing accurate, repeatable results. Don’t use accuracy as an excuse to not use soil tests, especially with the increased costs of inputs. I would also encourage you to run a more complete test so that you can get an accurate overall view of the soil from micronutrients to CEC to organic matter. It’s just a matter of good stewardship!!!

Thank You

We are in the midst of a very busy winter season. We just want to thank each of our clients for your support and we appreciate the chance to serve you. We wish you a very prosperous 2008!!