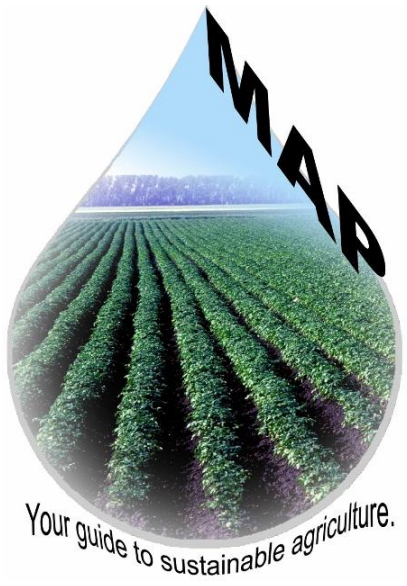

Gypsum, Friend or Foe?

By: Norman Wilson, Ph.D.

We have all heard the advice to use gypsum to "soften" compacted soil, but what exactly does that mean? Soften implies that a soil becomes less dense and more aerated with better tilth, however a gypsum application may or may not produce this result. We need to first understand what gypsum can actually accomplish in your soil. Gypsum is a specific chemical antidote for sodic soil. Theoretically, here's how it works. Gypsum supplies Calcium and Sulfur and when applied to a high Sodium soil, calcium replaces some of the Sodium on the soil exchange sites and this displaced sodium reacts with the Sulfur component to form water soluble Sodium sulfate which can be leached out of the root zone. That's how gypsum is supposed to work but in real world situations, it rarely does. The first problem is that most compacted soils are not actually sodic soils, in which case gypsum will produce disappointing results. Many compacted soils have pH related concerns (pH can be either too high or too low) and gypsum can't help because it is a pH neutral material. Sufficient water may not be available to leach salts out of the root zone or heavy clay sub-soils may not permit leaching. Perhaps the most important shortcoming of high gypsum application is the tendency for excess Calcium to react with Carbon dioxide in the soil to form Calcium carbonate or "limestone". Because Calcium carbonate is water insoluble, the soil surface can become very hard and unmanageable as the soil dries after rain or irrigation.

At this point, you may be asking if there is a better way to address compacted and hard to manage soils, so here is the rest of the story. Biological soil conditioning provides a low cost and effective alternative to gypsum. A soil Bio-stimulant such as Modern Ag Products' Soilcure or BioBase offers both ease of application and lower cost compared to gypsum. Modern Ag Products' Soilcure and BioBase have been shown to stimulate soil Bio-activity and this enhanced biological activity aerates compacted soil (the natural way to "soften" soil). As a part of this process, natural Humates are formed which flocculate soil, increase pore space, and improve soil tilth. A well flocculated soil does in fact become "softer" and less compacted as the soil density is reduced. Flocculated soil allows water penetration and retains more of that water in the root zone. Humates react with toxic elements such as sodium to form organic carbon complexes. Sodium in this form is not toxic to plants and is much less damaging to soil structure. Soilcure and BioBase are not soil specific. These products are equally effective in heavy clay, silt, or sandy soils with alkaline or acidic pH. Modern Ag Products' Soilcure and BioBase work when soil compaction is due to causes other than high sodium levels but if sodium is the problem, leaching is not required for remediation.

This approach can provide a remedy for compacted or sodic soils that is cost effective without the application problems associated with gypsum. Modern Ag Products' Soilcure and BioBase work on your soil problem; not some theoretical condition that you read about in a soil textbook.