

2008 FIELD TRIAL: SOIL CHEMICAL AMENDMENT OF AN ACIDIC HOME LAWN SYSTEM



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Objective: To evaluate Solu-Cal USA's PHCA -enhanced calcium granular amendments as ameliorants of sub-optimally acidic 'home-lawn' turfgrass systems in the Mid-Atlantic region. Efficacy of the one-time amendment applications will be assessed via measures of soil chemical change and resulting turfgrass shoot growth, density, and nutrient concentration.

As shown in Figure 7, no treatment produced the exchangeable acidity neutralization required to raise the pH_w of the upper 2.5" of soil to a target pH of 6.0. The probability of that occurring in a 4 month time frame is infinitesimal at best. Recent studies have shown applications of lime at the recommended quantity failed to induce the desired pH increase in this soil depth over a 2 year period (Schlossberg et al., 2008). Moreover, the referenced study observed a failure to reach the target pH when double the lime recommendation was surface applied!

In regards to the experiment-end soil data presented above (Fig. 7), the untreated plots generally demonstrated the greatest acidity and least optimal growing conditions for cool season turfgrass systems. While no treatment significantly increased the pH_B of the upper 2.5" of soil above the untreated (control) plots (Fig. 7b), significant comparative increases in pH_w, base saturation, and exchangeable Ca were observed (Figs. 7c, d, and e) in plots treated with:

- 550 lb / acre surface application of Solu-Cal-C (SGN 220)
- 2000 lb / acre surface application of OldCastle Pro Pelletized Limestone

Furthermore, Solu-Cal-C at (550 lbs / acre) was the only treatment that significantly reduced exchangeable acidity compared to untreated plots over the experimental period.

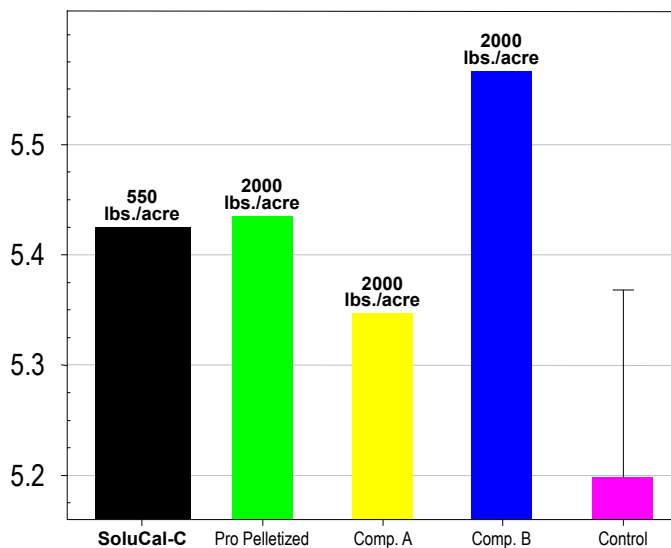
Summary

On a pound for pound basis, results observed over this short-term study indicate the coarse textured PHCA-amended liming agent Solu-Cal-C (SGN 220) to be an effective ameliorant of soil acidity in turfgrass systems. More finely-textured PHCA-amended alternatives, namely Comp. B and Solu-Cal-M (SGN 100) did not demonstrate the soil acidity amelioration efficacy of Solu-Cal-C over the imposed experimental duration.

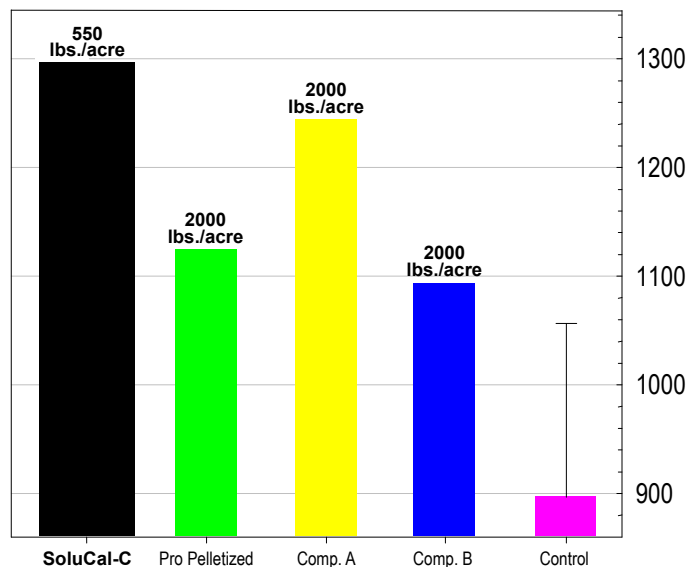
The 2000 lbs / acre treatment of OldCastle Pro Pelletized Limestone was also a top-performing treatment in this study, resulting in significant experiment-wide improvements of leaf/shoot Ca content; soil pH_w, exchangeable Ca, and base saturation in the upper 2.5" soil profile compared to the control. However, a notably-lesser application rate of the SGN 220 Solu-Cal (550 lbs / acre) resulted in equivalent increases of soil pH_w, exchangeable Ca, and base saturation in the upper 2.5" soil profile. While the SGN 220 Solu-Cal treatment did not significantly increase leaf/shoot Ca content compared to the control, it did significantly reduce exchangeable soil acidity in the upper 2.5". Meanwhile, a nearly four-fold application rate of OldCastle Pro Pelletized Limestone did not. Despite the subtle differences between the Solu-Cal-C and OldCastle treatments reported herein, these two treatments were observed to be the most effective ameliorants of the soil acidity. Likewise, both treatments fostered enhanced fine fescue growth and quality compared to the alternative treatments described



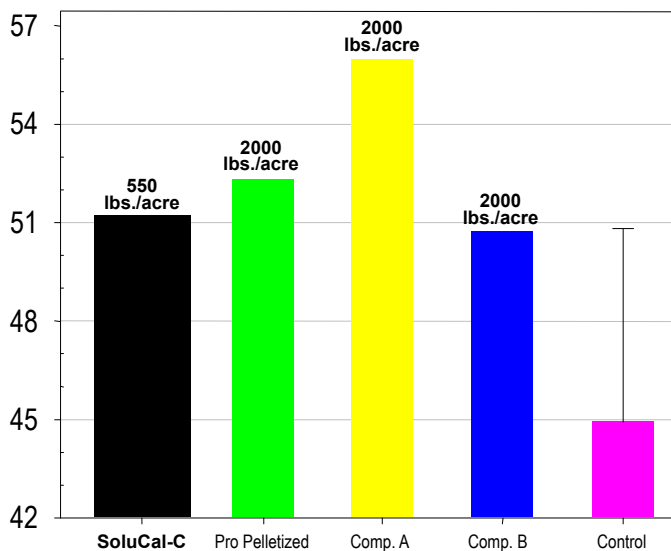
Soil Water pH



Exchangeable Soil Ca (ppm)



Base Saturation (%)



Leaf/Shoot Calcium Concentrate (% Ca. by mass)

