

Disclosed are compositions comprising chitosan, glucosamine and amino acids, where the concentration of said chitosan is greater than 1.5 wt% said glucosamine is greater than 1.5 wt%. In preferred embodiments the concentration of chitosan is from 2 to 2.5 wt% and glucosamine is 2 to 6 wt%. The composition can also include solid chitin, but generally no more than about 2 wt%. The composition can also include trace elements, protein and other polysaccharides. The composition is generally a liquid but may be a solid. In most embodiments, the solid can be reconstituted with water prior to use. In preferred embodiments, the composition comprises HYTd and at least one of, HYTa, HYTb and HYTc. In still other embodiments the composition comprises HYTd and two or more of, HYTa, HYTb and HYTc. The composition can also comprise HYTd, HYTa, HYTb and HYTc. In the disclosed processes soil, seed, seedling or plant foliage are contacted with HYTd or any of the above compositions.