



ABC's Of Phosphite

Making your life easy — and getting beautiful results — is what Growth Products is all about. Growth Products is also all about consumer education, and the science behind our products. Here we offer a brief primer on phosphite and how it differs from phosphate.

Phosphorous (P) is essential element for plant photosynthesis, root growth, energy storage and protein formation. The most common form of P in fertilizers is phosphate, which is a chemically stable molecule with four oxygen atoms. Because of its rock-like nature, the phosphate in traditional granular fertilizers often becomes bound in soils and is not fully available to plants.

Phosphite is also a form of P, but it has one less oxygen atom than phosphate. Being "lighter" by one oxygen atom than phosphate makes a tremendous difference. Phosphite is less chemically stable, and there-

- ◆ TKO helps fungicides work better.
- ◆ Does Not Contribute To Phosphate Build-Up in soils.
- ◆ Reduces Summer Stress
- ◆ Quickly enters through the leaves, crown and Roots.
- ◆ Highly systemic via xylem and phloem
- ◆ Protection throughout the whole plant including new growth

fore more agile than its staid cousin. It also has certain benefits that phosphate never dreamed of.

Phosphite is highly water soluble, and when applied to plants is quickly absorbed by leaves, roots, and branches. Once in plants, it is extremely mobile, exhibiting "symplastic ambimobility," meaning that it is uniquely able to move in both xylem and phloem¹.

Years of use in agricultural and horticultural settings have shown that foliar applications of phosphite improves seedling growth, bud formation, blossoming, fruit set, and plant vigor. On golf courses, phosphite improves turf quality and promotes overall growth. Applications of phosphite to turf also significantly reduce summer stress.

Interestingly, phosphite ions, unlike elemental phosphate, have fungitoxic effects on several plant pathogens¹. When EPA labeled fungicides with phosphite as an active ingredient are applied to grass, the phosphite moves quickly to the turf's crowns and roots, where it works against root rots such as *Pythium* and *Phytophthora*.^{1,2} (Note: Many phosphite fungicides and phosphite fertilizers have the same active ingredient, but only those products with an EPA fungicide label can claim any fungicidal properties or benefits. This News As It Happens discusses published research on phosphite, and does not make any

fungicidal claims for Growth Products' phosphite products.)

Scientists find phosphites both fascinating and a fertile source of ongoing debate and research. The growth-stimulating and other beneficial effects of phosphite are well-documented, even if they are not fully understood.^{1,2}



TKP Phosphite (0-29-26) is a highly concentrated P/K solution containing mono- and dipotassium salts of phosphorous acid. A clear liquid, TKO Phosphite is easy to mix and easy to use.

¹ Understanding Phosphonate Products, prepared by Peter Landschoot, Professor and Joshua Cook, Dept. of Crop and Soil Sciences, The Pennsylvania State University.

² Phosphite Fertilizers: What Are They? Can You Use Them? What Can They Do?, by C.J. Lovatt and R. L. Mikkelsen. Better Crops, vol. 90 (2006, No. 4)