Germinator/Starter versus none			
Poly-Phosphate vs Ortho-Phosphate for Germinator/Starter			
This was a very interesting trial using Brandt Steric$_{/1}$ P liquid plant food. This product is designed to correct phosphate deficiencies. This product will quickly boost plant growth during critical and high growth periods and can help prevent damage due to weather. 1/ Sterics is the trademark of Northwest Agricultural Products, Inc. Yields are in Bushels/Acre	Ortho Phosphate 2-12-0	Poly Phosphate 10-34-0	No Starter check
	157.2	143.4	193.1
	204	212.2	189.5
	166.4	209.7	188.6
	200.5	172	
	156.4	201.9	
	235.4	200	
	238	195.2	
	206	178.9	
		179.6	
		251.6	
Average yield ---------->	195.5	194.5	190.4
Average yield for germinator/starters ----->	195.0		
Advantage from a germinator/starter ---------->	4.6		

Advantage of Ortho vs Poly Phosphate ---->	1.0

STERIC-P™ contains chemistries that have been patented by NAP as the process called the Phosphate Transport Vehicle (STV). The summary of the invention is that it improved means of applying phosphates as a fertilizer through (1) phosphate ion shielding and (2) interfering ion inactivation. In this process we found that the different ionized forms of 2-hydroxy-1,2,3, propane tri-carboxylic acids and other organic acids can be used as a vehicle to facilitate the transport of soluble orthophosphates through the soil.

STV works in two ways:

(1) It shields the negative charges on the phosphate (PO_4^{-3}) molecule so that the calcium and magnesium in the soil can not activate it. This STV-complexed phosphate molecule is more mobile in the soil solution than is the unprotected ion. Analysis of phosphate movement in soils has shown that the STV-complex can move up to 12 inches into the soil profile when applied in the irrigation water whereas the naked phosphate ion rarely moved deeper than 2 inches into the profile.

(2) the STV chemistry can complex the metal ions in phosphate solutions as well in the soil that can inactivate the phosphate. STERIC-P™ itself is free of heavy metal ions that would inactivate the phosphate. But, research indicates that the STV chemistry in STERIC-P™ also makes the phosphate in 10-34-0 more available when combined in the planter band.

The STV chemistry not only shields the phosphate ion but it also combines with metal ions in the soil solution that interfere with phosphate availability. By the

proper use of STV, phosphorus availability is increased.

Research done by NAP and different cooperators over the last two years has shown that STERIC-P™ is three times more efficient than 10-34-0 or 0-52-0 in delivering phosphorus to the plant. This is true whether applied in planter bands or through irrigation. The effectiveness of the STV chemistry in STERIC-P™ has been proven many times in field conditions in a variety of soil types throughout the western United States on potato, corn and sugar beets.

Information provided by Brandt Consolidated Inc.