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THE USE OF THE BIOFERTILIZER PHOSPHOREIN TO REDUCE THE RATE OF MINERAL P FERTILIZATION IN THOMPSON SEEDLESS VINEYARDS

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ABSTRACT: In a field experiment during the two seasons of 2003 and 2004, mature Thompson Seedless grapevines grown under conditions of sandy clay loam soil and flood irrigation received the usual dose of phosphorus fertilization in the region; i.e., 100 kg/*fed* of calcium superphosphate 15.5 $\%P_2O_5$ (control), or different combinations between lower doses of calcium superphosphate (75, 50, 25 or 0 kg /*fed*) each with 4 or 8 kg/*fed* of the biofertilizer phosphorein. Evaluation of the tested treatments was carried out through parameters of the yield components, bunch characteristics, berry physical properties and juice chemical constituents as well as leaf area, weight, photosynthetic pigments and N, P and K contents. The obtained results revealed suppressive effect of the combinations between 0 and 25kg calcium superphosphate/*fed* each with 4 or 8 kg phosphorein/*fed* on many of the considered vine activities, as compared with the control. The early diseffícacy of these treatments; i.e., in the first and second seasons, of application ment that both rates of phosphorein failed to compensate the lack or the low rate of mineral P fertilization. However, the combinations between the medium rates of calcium superphosphate; i.e., 75 and 50 kg/*fed* each with 4 or 8 kg/*fed* phosphorein were nearly as efficient as the control regarding most of the studied parameters. This ment that these treatments saved 25 or 50 kg calcium superphosphate. As fertilization experiments usually need many years, it could be suggested to continue the evaluation of the combined P fertilization treatments of 75 and 50 kg/*fed* calcium superphosphate, each with 4 and 8 kg/*fed* of the biofertilizer phosphorein on Thompson Seedless grapevines.

Key words: Grapevines, calcium superphosphate and biofertilizers.