S1: Observatories - poster

Soil Sample Fertilized with Sewage Sludge

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Abstract: The goal of this paper was to apply statistical techniques in determining the minimum number of soil samples to be collected in a fertilized area with sewage sludge which, after analyses, represent, with high confidence, the chemical composition of the analyzed soil. To this end parcels of 486 m2 were used, consisting of 9 lines set out in a 3 meter interval and in each line 9 Mata Atlântica plants, alternating with a mix of pioneering, secondary and climax plants were planted at a 2 meter interval, totaling 81 plants. These plants were fertilized with sewage sludge in the following doses: 2,5; 5,0; 10,0; 15,0 and 20,0 t ha-1. For every dose of sewage sludge, 5, 10, 15, 20, and 25 simple soil samples were collected, thus composing the samples that were sent out for laboratory analysis. The experimental design followed the random block method with four repetitions, in an outline of subdivided parcels, where the parcels were made of doses of sewage sludge and the sub parcels of number of samples collected. The measured values of Ca, Mg, P and K obtained from the analyzed soil were varying, confirming to the doses of sewage sludge applied, but the number of samples were not influenced by agricultural practice, leaving the spatial variability for each type of variable. Based upon obtained results it can be concluded that, in order to determine pH, H+ + Al+3 and M.O. of the variables, after applying 20 t ha-1, it is necessary to collect, at least, 5 simple samples as a base for a reliable composed sample. To determine the values of K, Ca and Mg, with high confidence, 20 or more simple samples were needed to make such a composed sample.