



A Geostatistical Investigation On Soil Phosphorus And Wheat Yield For The Site Specific Management In Semi Arid Central Anatolia

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Site specific farming addresses the small-scale spatial variability of soil and plant parameters in fields. Knowledge of spatial correlation of these parameters is essential for both the evaluation of geocoded sampling strategies and optimisation of farm input applications. Geostatistics provides us with the tools to explore the structure of the spatial variation in soil and crop and suggests suitable sampling schemes for estimation. However, basic data and its structure of spatial variation about georeferenced soil and crop parameters are regularly missing. In this study, geostatistical parameters for spatially variable soil phosphorus (P) and Wheat yield in semi arid anatolian region were investigated using geostatistics. Active lag distance was found to be 387 m in the field. Minimum and maximum sampling distance were revealed as 31 m and 89 m respectively. The best spatial resolution for the combine cutting width was found to be 4 m giving same width with the combine cutter bar used in the harvest. The results obtained from anisotropic analyses did not show any significant directional differences. P and Wheat yield lag was found to be 65 m and 75 m respectively to generate a true image of the spatial variability. Punctual kriging interpolations were explored for the investigated lag distance. Some deviations were observed even in a short lag distances because of neighbouring sample classes that were changed according to the lag distances used in both experimental semivariogram and kriging interpolation. Similar deviation was attained at 45 m for P and 65 m for Wheat yield. Hence semivariogram analyses were done with fitted model for different lag distances to avoid from similar deviations and determined by comparison for the most suitable lag distance.