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RESEARCH ARTICLE :

GPS based soil fertility maps of village Baragaon Nandur, taluka Rahuri, Ahmednagar

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SUMMARY : The present study entitled, "GPS based soil fertility map of Village Baragaon Nandur, Taluka Rahuri, Ahmednagar, was carried out during the year 2015-16 at the Department of Soil Science and Agricultural Chemistry, Post Graduate Institute Mahatma Phule Krishi Vidyapeeth, Rahuri. The soil fertilitymapswere prepared by using Global Positioning System (GPS) to make awareness among the farmers regarding use of balanced fertilization according to soil test based recommendation and integrated nutrient management for higher and sustainable crop production. The geo-referenced surface soil (0-22.5 cm) samples were collected from Village Baragaon Nandur by using Differential Global Positioning System (D-GPS).The analogue soil fertility maps on 1:2500 scale were geo-referenced and digitized by using ArcGIS software. These maps were integrated in GIS to generate a composite database of GPS based soil of BaragaonNandur Village. Based on the generated soil fertility maps, the status of pH,EC, organic carbon, $CaCO_3$, available N, available P and available K was assessed and suitable crops such as cotton, wheat, pulses, vegetables and fruit crops have been identified. The pH and EC of soils of Village Baragaon Nadur varied from 7.78 to 8.73 and 0.17 to 0.69 dSm^{-1},respectively. The organic carbon and calcium carbonate content in soils varied from 0.21 to 0.82 per cent and 5.25 to 15.75 per cent, respectively. The available nitrogen, phosphorus and potassium were ranged from 137.90 to 310.40, 6.37 to 27.12, and 257.60 to 763.20 kg ha^{-1}, respectively. The soil of Village BaragaonNanadur recorded a very low to moderate available nitrogen, very low to moderately high in available phosphorus and high to very high in available potassium. The exchangeable calcium and magnesium content in soils ranged from 22.21 to 37.30 and 9.03 to 19.60 [cmol (p+) kg^{1}], respectively. The exchangeable calcium was 100 per cent sufficient and only 5.77 per cent area found deficient in exchangeable Magnesium. The available Sulphur in soils were ranged from 6.5 to 29.75 mg kg^{-1}. Only 41.34 per cent area were found deficient. These maps will be helpful for the farming community of the study zone to use properly the macro nutrients for different crops thereby saving costly inputs with increase in production, productivity, crop quality.

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