

Short Communication

NPK Status Of Wheat Growing Soils In Auraiya District Of Uttar Pradesh

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The invariable cropping intensity using extensive high yielding varieties, indiscriminate use of high analysis fertilizer and scarcity of organic manure may result in low fertility of soil in the years to come. Soil productivity is closely associated with pH, EC, organic Carbon and available NPK in the soil. All these factors influence the wheat production but the diversity in soil and agro-ecosystem with in a particular area further makes the situation more complicated and thereby beyond the understanding of a local farmer by themselves. For example it has been observed in many villages that the farmers are adopting the same dosages of NPK for a particular crop under varying soil properties and conditions. However, no systematic work has been done to ascertain the cause of wheat decline in the southern plane of U.P. Keeping in view the above facts, a survey for comprehensive study of nutrient status has been under taken in Auraiya district of Uttar Pradesh.

One hundred and sixty eight representative soils samples were collected from 7 blocks representing important soils group in wheat growing areas of Auraiya district. The soils samples were air-dried and processed to pass through a 2 mm sieve. These samples were analyzed for their physicochemical characteristics using standard procedures of chemical analysis. Available nitrogen was analyzed by modified Kjeldhal method Jackson, (1973), available phosphorous method and

available potash was extracted by 1 N NH₄OAc using flame photometer.

Table – 1 indicates that the soils of Auraiya district are characterized by slightly acidic to saline reaction (pH ranges from 5.12-7.82) with a mean value of 6.88. The texture of the soils varies from loamy sand to silty loam in surface soil samples. The soils of Bidhuna block are acidic in nature in comparison to other blocks of Auraiya district. Electrical conductivity of the soils ranges from 0.10 – 0.17 with a mean value of 0.138, dsm⁻¹. It means that all the soils of Auraiya district are not dominant to sodium cations, therefore these soils are suited for wheat crops. Organic carbon varies from 0.36 – 1.07% with a mean value of 0.63. All the soils of Auraiya district are having sufficient amount of organic carbon. These results were observed due to recycling of nutrient through application of biomass by farmers in traditionally used practices in these areas. Ajeetmal and Auraiya block is comparatively poor in organic carbon, where as Bidhuna block soils are rich in organic carbon. Cation exchange capacity of these soils varies from 9.8 – 18.6 with a mean value of 14.30%. Bidhuna block is rich in CEC in comparison to other blocks of Auraiya district. Calcium carbonate in these soils ranges from 0.52-4.25% with a mean value of 2.4%. All the soils of Auraiya district are highly calcareous (70.5%).

Available nitrogen in these soils ranges from 138 – 173 kg ha⁻¹ with a mean value of 155.95 kg ha⁻¹. Low status

DETAILS OF SOIL ANALYSIS

S. No	Analytical Parameters	METHODOLOGY	Reference
1.	EC	EC meter	Jackson (1973)
2.	Soil reaction	pH meter	Jackson (1973)
3.	CEC	Neutral normal NH ₄ OAc extraction	Jackson (1973)
4.	O.C.	Walkley and Black method	Jackson (1973)
5.	Available N	Alkaline permanganate method	Subbaih and Asija, (1956)
6.	Available P	Colorimetry	Olsen and Sommers (1982)
7.	Available K	Flame photometry	Jackson (1973)
8.	Bulk density	Clod method	Blake and Hartge (1986)
9.	Soil texture	International pipette method	Gee and Bauder (1986)
10.	Moisture retention characteristics	Pressure plate apparatus	Klute (1986)

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