

## IMPACT OF CONTINUOUS CULTIVATION ON SOIL PROPERTIES OF IMO STATE SOUTHEASTERN NIGERIA

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The study was centred on the impact of continuous cultivation on soil properties of Imo state Southeastern Nigeria. Field study was carried out in six Local Government Areas of Imo State which include Owerri West, Ideato North, Ikeduru, Ngor Okpala, Mbaitoli, Owerri Municipal. 0-15 cm and 15-30 cm soil samples were collected from a seven year continuous cultivated plots. Soil samples were also collected in fallow plots as a tool for comparison. Soil samples were air dried and sieved for standard laboratory analysis. Data obtained were subjected to statistical analysis. Results show nutrient depletion in the continuous cultivated plots compared to the fallow plot. Mean pH values recorded in the continuous cultivated plots was 5.27 compared to 6.22 recorded in the fallow plots. High total exchangeable acidity was recorded in the continuous plots (2.06 cmol/kg) compared to fallow plots (0.80 cmol/kg). The fallow plots recorded higher mean organic matter content (3.66 %), total nitrogen (0.14 %) total exchangeable bases (3.43 cmol/kg), effective cation exchange capacity (4.23), percentage base saturation (81.1 %) and available phosphorus (19.69 ppm) compared to the continuous cultivated plots having mean organic matter content (0.72 %), total nitrogen (0.07 %) total exchangeable bases (0.84 cmol/kg), effective cation exchange capacity (2.90 cmol/kg), percentage base saturation (28.7 %) and available phosphorus (4.58 ppm). Deforestation, intensive cultivation and erosion were observed to have aided the decline of nutrient levels in the continuous cultivated plots. Application of organic manure, crop rotation and incorporation of crop residue would boost the fertility status of these soils.

**Keywords:** Continuous cultivated plots, fallow plots, soil properties, Southeastern Nigeria.

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Исследования были направлены на изучение воздействия постоянного возделывания на свойства почв в штате Имо в Юговосточной Нигерии. Полевые исследования были проведены на шести участках местного самоуправления в штате ИМО: Owerri West, Ideato North, Ikeduru, Ngor Okpara, Mbaitoli, Owerri Municipal. Пробы почвы отбирали в слоях 0-15 и 15-30 см на участках семилетней пашни. В то же время, для сравнения, пробы отбирали на целинных участках. Пробы почвы довели до воздушно-сухого состояния и просеяли для стандартных анализов. Результаты показали уменьшение содержания питательных веществ на постоянно обрабатываемых почвах по сравнению с целинными участками. Среднее значение pH, определенное на постоянно обрабатываемых почвах равнялось 5,27, по сравнению с 6,22 на целинных участках. На обрабатываемых участках была определена высокая обменная кислотность (2.06 смол/kg) по сравнению с целиной (0.80 смол/kg).

На целинных участках определили более высокое содержание органических веществ (3.66 %), общего азота (0.14 %), сумму обменных оснований (3.43 см/кг), емкость обмена катионов (4.23), насыщенность основаниями (81.1 %) и содержание доступного фосфора (19.69 ppm) по сравнению с обрабатываемыми почвами, имеющими такие средние значения: содержание органических веществ (0.72 %), общий азот (0.07 %) сумма обменных оснований (0.84 см/кг), емкость обмена катионов (2.90 смол/kg), насыщенность основаниями (28.7 %) и доступный фосфор (4.58 ppm).

Снижению уровня питательного режима обрабатываемых почв способствуют уничтожение лесов, интенсивная распашка и эрозия. Применение органических удобрений, севообороты и запахивание растительных остатков будут повышать состояние плодородия этих почв.

**Ключевые слова:** постоянно обрабатываемые участки, целинные участки, свойства почвы, Юго-Восточная Нигерия.