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EFFECT OF DIFFERENT CONSERVATION AGRICULTURAL PRACTICES ON SOIL PHYSICAL AND CHEMICAL PROPERTIES, IN BAKO TIBE DISTRICT, WEST SHOA, ETHIOPIA

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ABSTRACT

The study was conducted to assess the effect of different conservation agriculture on soil physical and chemical properties in Bako District. Monocropping (maize) without crop residue, Monocropping (maize) with crop residue, Crop rotation (mazie and haricot bean) with crop residue, Inter cropping (Haricot bean with maize) with crop residue and Pigeon pea shurb specie as a hedge row and including a near by grazing land (Orginal land use) were selected for the study. A completely randomized design with four replications was used. A total of 48 composite soil samples (4 replication * 6 treatments * 2 soil depth: 0– 10 cm and 10–30 cm) were collected and analyzed for soil physical and chemical properties. Addational undisturbed core samples were also collected to determine soil bulk density (g /cm^3). The particle size distributions of the soils were similar in the agricultural practices and grazing land. Bulk density was not significantly different among the agricultural practices including grazing land. The soils in the study area were moderately acidic, and contain medium level of AP, but low concentration of total N. Soil pH, SOC, TN, C:N, and AP did not significantly different among the treartments after four years of conservation agricutural practices. Therefore, conservation agriculture has little effect on SOC and other soil properties in short term, but it may take longer time to influence soil properties in the study area.

KEYWORDS: Crop Rotation, Grazing Land, Intercropping, Soil Chemical Properties, Soil Organic Carbon, Crop Residue