INTRODUCTION
Agriculture is considered as the mainstay of the Sudanese economy and accounts for about 38.9% of the GDP, provides about 80% of the country’s export, and employs 62% of the labour force, with about 80% of the population dependent on agriculture for livelihood and raw materials for the industries.

Tillage is the practice of modifying the state of the soil in order to provide condition favorable for plant growth. Excessive tillage may increase the risk of water loss and soil erosion by wind and water. Conventional tillage practices in the semi-arid regions often-bury excessive quantities of residues and reduce soil tendency for clodding and surface roughness. The main purpose of tillage operations is to prepare the appropriate cradle for seeds by dismantling and loosening the soil and uprooting the grass plants which grow there. Success or failure of crop production depends on the good preparation of the land. In addition, tillage has changed the physical properties of the soil.

The research is investigated to select the best methods of tillage under desertified areas, in order to reduce costs of traditional tillage so as to increase crop production of the land.

STUDY AREA
The Field experiments were carried out for two successive seasons in the study area of Omdurman west of Khartoum state which located between latitudes 15° 65' and N and longitude 32° 48' E as shown in figure (1). The climate of the area is arid and semi-arid with an average rainfall of 121 mm/year.

METHODS
To achieve the objectives of this study, two tractors with different draft force were used. The first tractor used as a tester and the second used as auxiliary, as well two primary ploughs (disc plough) and chisel plough and two secondary ploughs (disc harrow plough and chisel plough) and Ridger plough in addition to an animal-drawn plough. Tillage parameters have been investigated such as; in a first test, the land has been prepared by using chisel plough to a depth of 30 cm, then opening furrows using Ridger plough. The second test by using the chisel plough to a depth of 20 cm, and then furrows using Ridger plough. The third test using offset harrow plough to a depth of 25 cm then furrows using Ridger plough. The fourth test opened the furrows using Ridger plough to a depth of 30 cm. The fifth test opened the furrows using the animal-drawn plough to a depth of 15 cm.

RESULTS
The results recorded that the field efficiency of (chisel plough (90.5), disc plough (85.5), harrow plough (70.5), Ridger plough (50.5) and the animal-drawn plough (15.5) respectively. The results showed that the fuel consumption in l/ha recorded 6.50, 3.30, 2.60 and 2.10, respectively.

CONCLUSIONS
The study recommended that the most suitable practice is the Ridger plough which was recorded the higher field efficiency and less fuel consumption for enhancement soil moisture and increasing the crop production in the land. Also, recommended to avoid the tillage in deep depth which case in increase soil bulk density and more fuel consumption.

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