



DESIGN AND TEST A PLOWING APPEARANCE MEASUREMENT DEVICE

ALI ABDULQADER MOHAMMED ALI
AHMED ABED GATEA

UNIVERSITY OF AL_QASIM GREEN _ IRAQ



Introduction

- ❖ Plowing appearance device was designed to calculate the number of colds per area after the tillage operation.
- ❖ This can be done by calculating tillage view using mechanical equipment through the generation of electrical impulses that are sent to an accurate control unit.

Aim

The device was designed and fabricated and then, an experiment was carried

Materials & Methods

Three factors were considered : First factor represents the forward speed of tractor at three levels (3.5, 4.5, 5.5 km/h) and the second factor represent soil moisture content at two levels (14, 20%) and the third factor denote tillage depth of three levels (10, 15, 20 cm) to the clay loam in Wasit cities in Iraq.

Results & Discussion

- ❖ A split-split plot design technique with three replications was used in this research. The results shown, that significant differences to the forward speed of the tractor on tillage view for more than 10 cm clod size.
- ❖ The forward speed at 5.5 km/h recorded the less number of clods for more 10 cm clod size, while not significant effect shown for the forward speed on the tillage view used in the traditional method of clod numbers computing.

Conclusion

The overall results showed, that the device can be providing a significant difference in the results compared with the traditional methods and it will be more accurate.

Moisture content of soil X Tractor speed				Tractor speed (Kmh)
(% Moisture content of soil				
%20-17 (%18.5)		% 17-14 (% 15.5)		
Traditional method	plowing appearance device	Traditional method	plowing appearance device	
11.350	11.200	8.900	8.283	3.5
10.633	10.117	12.90	8.767	4.5
7.837	7.543	5.690	5.503	5.5
3.9678 :plowing appearance device LSD for (Tractor speed X Moisture content of soil)=0.05				
5.5974 :Traditional method				

- 1- The frame for the plowing appearance device parts
- 2- Wells
- 3- Running ring to calculate the distance
- 4- Belt
- 5- Betty measure the mass of plowing
- 6- Walkers throat measure the distance
- 7- The device axis
- 8- Plow width.

