Design, fabrication and field testing of sand filling system to the mole plough

ABSTRACT
The subsurface drainage system is highly expensive and may not be affordable to the small, medium size farmers, whereas the wastage of land, maintenance are the big problems with the surface drainage system. Keeping these points in view, a mole plough was designed and then further modified with the additional sand filling system. The field tests were conducted in the heavy clay soil with 1.5 % slope. A 60 Hp tractor was selected and operated with modified mole plough in I-L gear. The speed of operation was 0.75 Km/hr. The mole channels were formed as 3 m wide spacing and to a depth of 55 cm. The rate of coverage was calculated on the basis of length of mole channel. An auxiliary fuel supply system was utilized for the measurement of fuel consumption. The cost of formation of mole channels was calculated by straight line method. The result of the tests were collected, analyzed and revealed that, the sand filling system designed works suitably with a fuel consumption of 0.3 lit/100 m length of mole channel. The cost of operation was Rs. 9450 /ha while operating at 3 m spacing of mole drains the % filling of mole channels was 77.59 per cent.

Key words: Mole plough, Sand filling system