

Soil bin evaluation of plain blade disc straw cutting mechanism for sowing under no-tillage system

U.R. BADEGAONKAR, ANIL K. KAMBLE AND S.H. THAKARE

Received : 09.07.2014; Revised : 16.09.2014; Accepted : 27.09.2014

See end of the Paper for authors' affiliation

Correspondence to :

ANIL K. KAMBLE

AICRP on Renewable Energy Sources, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, AKOLA (M.S.) INDIA
Email : anilkumar_kamble@hotmail.com

■ **ABSTRACT** : The performance of the straw cutting mechanism equipped with plain blade straw cutting disc and a pair of twin press wheels assembly was evaluated in soil bin laboratory on a wide range of straw densities from 3000 to 5000 kg/ha at forward speed of carriage 2.5 km/h and speed ratios of 5.20, 6.94 and 8.67. The relative effect of the variables of speed ratio, pair of press wheels and straw density on the responses of horizontal force (F_h), vertical force (F_v), power consumption, straw cutting percentage and clogged straw were studied. The F_h requirement was observed to be 12.16, 12.50 and 13.59 kgf at 3000, 4000 and 5000 kg/ha straw density, respectively at 5.20 speed ratio and the F_v requirement was observed to be 27.58, 29.91 and 32.82 kgf at the same straw density levels and speed ratio. The draft and vertical forces increased with the increase in the rotational speed and straw density. The power consumption of straw cutting mechanism was estimated to be 192.66, 280.23 and 356.33 W and straw clogged was found to be 7.58, 4.51 and 6.22 kg/ha at the same straw density levels and speed ratios. The observations and data indicated that the straw cutting performance of the plain blade disc straw cutting mechanism was 100per cent at all straw density levels and speed ratio.

■ **KEY WORDS** : No-till, Paddy straw, Plain straw cutting disc and press wheels

■ **HOW TO CITE THIS PAPER** : Badegaonkar, U.R., Kamble, Anil K. and Thakare, S.H. (2014). Soil bin evaluation of plain blade disc straw cutting mechanism for sowing under no-tillage system. *Internat. J. Agric. Engg.*, 7(2): 456-460.