

Research Paper :

Feasibility testing of tractor operated seed drill for sowing sorghum

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ABSTRACT

The present study was conducted to evaluate the effect of use of tractor operated seed- cum-fertilizer drill for its field performance in comparison with bullock drawn seed drill (Tifan) for sowing sorghum crop (CSH-9) as per RNAM test codes. The field test was conducted on medium black soil at moisture content of 33.60%. It was found that tractor operated seed-cum-fertilizer drill works better than bullock drawn seed drill in respect of effective field capacity, field efficiency, depth of placement of seed, yield of crop, yield of fodder and cost of sowing per hectare. The mechanized method of sowing has resulted in a 66.70% increase in effective field capacity, 22.36% increase in field efficiency, 20.00% increase in depth of seeding, 16.76% increase in grain yield, 19.14% increase in fodder yield, 66.40% saving in operation of time and 44.70% saving in cost of operation. The overall benefit of Rs.412.12/- per hectare was observed by using mechanized method of sowing.

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Key words : Mechanization, Seed-cum-fertilizer drill, Tifan, Effective field capacity, Field efficiency, Yield, CSH-9

Sorghum [*Sorghum bicolor* (L.) Moench] is one of the major food grain crop of Maharashtra. Besides being a major source of staple food for human, it serves as an important source of cattle feed and fodder. It makes comparatively quick growth and gives not only good yield of grain but also very large quantities of fodder. In India sorghum is grown over an area of 8.47 million hectares with total production of about 7.15 million tonnes. In Maharashtra State it is grown over an area of 5.02 million hectares with total production of about 4.39 million tonnes (Anonymous, 2007).

The sowing of Sorghum seed generally done by broadcasting, dibbling, drilling, hill dropping and check row planting. Sowing of seeds by drilling is modern and most popular method. It is advantageous over other methods in economy and adaptability. The sowing of sorghum is accomplished by using animal drawn seed-drill (Tifan) is tedious, time consuming and expensive. The sowing operation has to be performed within the very short time to take the advantage of monsoon and residual soil moisture. The scarcities of labour and high cost of cultivation, wages have become the important factors affecting the timely sowing of sorghum crop and ultimate its yield. One of the main reason of low productivity is low level of farm mechanization.

Hence, the present study was conducted to evaluate the performance of tractor operated exiting seed-cum-fertilizer drill for sowing sorghum in comparison with the animal drawn seed drill used by the farmers and an impact of mechanization on its economics.

METHODOLOGY

Sorghum seeds (CSH-9) was used for experimental purpose. The tractor operated seed-cum-fertilizer drill was tested in laboratory and field for their performance in comparison with animal drawn seed drill. Before using the seed-cum-fertilizer drill in the field it was calibrated for correct seed and fertilizer rate (Hunt Donnel, 1960). The soil moisture was calculated by taking the samples of soil randomly at three different depths (0-4cm, 4-8cm, 8-12cm) from experimental plot. The field performance tests of mechanized and traditional methods were carried out on each one hectare of area at Central Research Station, Dr. Panjabrao Deshmukh Krishi Vidayapeeth, Akola (M.S.).

Experimental setup:

A tractor operated seed-cum-fertilizer drill with three furrow openers was used for the study as an improved technology over the traditional method of sowing sorghum.