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ABSTRACT

A weed may be defined as any plant or vegetation that interferes with the objectives of farming or forestry, such as growing crops, grazing animals or cultivating forest plantations. A weed also be defined as any plant growing where it is not wanted. Chemical methods of weeding are used but they lead to pollution and hazardous to human health. Thus it is proffered to use the manual method but it is very time consuming and costly. Thus a mechanical weeder with fast action, light weight , low cost and easy to operate is needed to be developed. The project work involve the design development and analysis of one such mechanical weeder that is operated using DC motor run on battery and desired force of the weeding attained use a worm gear box. Unigraphics software used to develop the model of the components of the system and analysis work bench is used to carry out the analysis of the component. The critical components of assembly of the weeder and the manufacturing of the same will be done subsequently and then trial will be conducted to find out the performance of the system.

Keywords: Weeder, Hoe, Chemical weeding , Unigraphix and Ansys.

I. INTRODUCTION

Weeding is one of the most important farm operation in crop production system. Weed growth is major problem for land crops. Weeding is generally done 15-20 day.

Weeding is one of the most important farm operation in crop production system. Weed growth is major problem for land crops. Weeding is generally done 15-20 days after sowing. the weed should be and controlled and eliminated at their early stage. depending upon the weed density,20-30 percent loss in grain yield is quite usual which mite increase up to 80 percent if adequate crop management practice is not observed. Weeds compete with crops plants for nutrients and other growth factors and in the absence of and effective control measure, remove 30 to 40 percent of applied nutrients resulting.

In significant yield reduction. Delay and negligence in weeding operation affect the crops yield and the loss in crops yield due to weeds in upland crops vary from 40-60 percent and in many cases cause complete crop failure. Timely weeding is very much essential for a good weeders which can reduce the time spent on weeding (man-hours) ,cost of weeding and drudgery involved in manual weeding. Mechanical weed control not only uproots the weeds between crop rose but also keeps the soil surface loose, ensuring better soil aeration and water intake capacity.

Weeding is simple with light duty solar operated powered weeder instead of reaching down to pool weeds, you can do it the job from a comfortable standing position. Light weight quite and easy to use. It makes quick work of small weeds.

II. METHOD

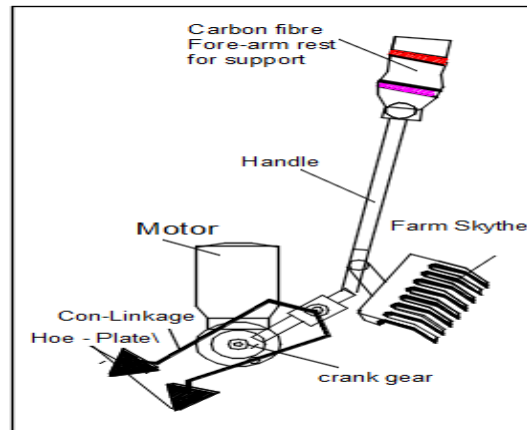


Fig:1 2d sketch of solar operated power weeder and hoe

III. LITERATURE VIEW

1] **V.K.Tewari, R.K. Datta and A.S.R. Murthy**-Performance of three manually operated weeders was evaluated from ergonomics and mechanical considerations. Three operators were selected for laboratory and field trials; they represented the 5th, 50th and 95th percentiles of the operator population. Laboratory tests were conducted in a psychometric chamber to study physiological response under varying load and environmental conditions. From the data, relationships between energy expenditure rate and oxygen consumption rate vs heart rate were established. Field tests were carried out with the three weeders in a farm with Arhar crop (*Cajanus cajan* L.) during August-September, when the average ambient temperature and relative humidity were 36°C and 82% respectively. The results of this investigation indicated that weeding with the indigenous tools of a 'kharpi' and a spade and with the improved tool (3-tine hoe) could be rated as 'moderately heavy' work. However, a 'kharpi' demanded less energy expenditure than a 3-tine hoe followed by a spade. The squatting posture with a 'kharpi' appeared to be more comfortable than the standing posture with about 145 ° erect position for the 3-tine hoe, followed by the standing posture with about 108 ° erect position with the spade. For consideration of higher output, the order was spade, 3-tine hoe and 'kharpi'. For weeding efficiency the trend was, however, just the reverse.

2] **A. Rahman, M. A. Rabbani, Milufarzana, Jannat Yasmin and Md. Raju Ahmed**-A push type weeder for wet land weeding was designed and developed at the workshop of the Department of Farm Power and Machinery, Bangladesh Agricultural University, Mymensingh. of four parts namely float, cono with blades, main frame and handle. The weight of the push type weeder was 8.61 kg. The weeder was tested at the experimental field of the Department of Farm Power and Machinery to evaluate its functional and economical parameters. The pushing force required 56.24N to operate the weeder. The weeding efficiency of weeder was found 63.41%. The average percent of breakage and the field capacity of the weeder were observed to be 5.04 and 0.012 ha/hr, respectively. The operating cost of the weeder was estimated as 2145 Tk/ha. Since the pushing force is very low, it is easy to operate, and even the woman can operate it. Furthermore, the fabrication cost of the push type weeder is reasonable. Therefore, designed push type weeder is the best in terms of cost of operation and it is more economical compared to manual weeding operation.

IV. CONCLUSION

By implementing this system control the weed by solar operated weeder. It is efficient than manual weeding. We can use the triangular hoe because this shape makes the efficient system.

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