Impact of Mini Power Tiller in Vegetable Cultivation: A Success Story of Farm Women

Nidhi Kumari[1], Prabhat Kumar Singh[2], Jaya Sinha[3]*andSanjay Kumar[4]

[1]Subject Matter Specialist, Soil &Water Engineering, Krishi Vigyan Kendra (KVK), Muzaffarpur (Additional), Dr. Rajendra Prasad Central Agricultural University, Pusa, Samastipur, 848125, Bihar
[2]Research Associate, Climate Resilient Agriculture Programme, Dr. Rajendra Prasad Central Agricultural University, Pusa, Samastipur, 848125, Bihar
[3,4]Assistant Professor, CAET, Dr. Rajendra Prasad Central Agricultural University, Pusa, Samastipur, 848125, Bihar.

Corresponding Author
Jaya Sinha
Email: jaya.sinha@rpcau.ac.in

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ABSTRACT

Smt. Reena Bharti a progressive farmer of Keshopur village,Sakra Block, Muzaffarpur district,Bihar. She is a marginal farmer vegetable grower. The lady farmer under took a rural youth training program on farm mechanization at KVK Turki, Muzaffarpur in the year 2019.She showed her interest to adopt mini power tiller in her vegetable fields. She purchased mini power tiller equipped with cultivator, rotavator and ridge maker.She observed that through the application of power tiller and other implements cost of cultivation in different farming operation reduces .Power tiller also reduces the farm drudgery, increases the ease of operation and reduces labour cost. Field operation through Mini power tiller along with attachment increases the income and made Mrs. Bharati self-reliant in farming.

INTRODUCTION

Smt. Reena Bharti is wife of Shri Arvind Kumara progressive farmer of Keshopur village of Sakra Block of Mrs. Reena Bharti majorly grow bottle gourd, cauliflower, Bitter gourd, capsicum, potato, chilli, broccoli etc. district. She is a vegetable grower farmer having land holding two acres. She perform all the vegetable farming operation manually. The major farm activities like tillage, weeding and ridge making using indigenous method was labour intensive, arduous ,time consuming and most of these operation are done by farm women. Mrs. Reena Bharti majorly grow bottle gourd, cauliflower, Bitter gourd, capsicum, potato, chilli, broccoli etc. Mrs. Bharati performed most of the activities like tillage, weeding and ridge manually.

Resources Possessed: Mrs. Bharati having total land holding of 2 acres for vegetable cultivation.

Sources of Motivation:

It has been observed that farmers are having small and fragmented land holdings and they are subjected to least use of bigger farm implements available at rent basis.. After looking these difficulties Subject Matter Specialist of Agricultural Engineering of KVK suggested farmers to use mini power tiller for their farm works. The lady farmer under taken a rural youth training program held on farm mechanization at KVK Turki Muzaffarpur in the year 2019.After completion of training, she showed her interest to adopt mini power tiller in her vegetable fields. She purchased mini power tiller equipped with cultivator, rotavator and ridge maker. It was observed that the field capacity and depth of cut of 3 tyne cultivator is found as 0.045 ha/h and 10 to 15 cm in hard to moist soil respectively. The field capacity and depth of cut of rotavator is found as 0.072 ha/h and 25 cm respectively. The field capacity of ridger is found as 0.4 ha/hr. The fuel consumption varies from 0.8 to 0.9 ml/hr in hard to moist soil respectively. Mini power tiller can be used for primary and secondary tillage by cultivator and rotavator respectively, furrow making by ridger, harvesting by potato digger.

Technologies adopted from KVK, Turki by Mrs. Reena Bharti

Mini power tiller attached with rotavator

Tillage of vegetable field by rotavator equipped with Mini power tiller below the stalking

7 hp Mini power tiller

Attachments of mini power tiller cultivator, ridger and rotavator from left to right

Fig.1: Mini power tiller different attachments with rear and front view

Since this implement is of light weight and having gear operating system which makes this user friendly, also minimized cost adds on less economical load on farmers. This is found in the study farmers are hiring implements on rent basis and facilitate their farm activities but due to demand of the implements at a time results in delayed cropping, which decrease the productivity. Low-cost mini power tiller is a great alternative of high cost tractor for small and marginal farmers.

Table 1: Comparative study of different farm operation using different power sources

Operation	Power sources	Cost Rs./ha	Operational time (Days)	Time saving with respect to human (%)	Time saving with respect to bullock (%)	Cost saving with respect to human (%)	Cost saving with respect to bullock (%)
Ploughing	Human	45760	143	-	-	-	-
	Bullock	1350	3.0	97.90	-	97.05	-
	Minipower tiller	1025	2.5	98.25	16.67	97.76	24.07
Ridge making	Human	32000	100	-	-	-	-
	Bullock	4700	10	90.00		85.31	
	Mini power tiller	2050	5.0	95.00	50.00	93.59	56.38
Potato digging	Human	32000	100	-	-	-	-
	Bullock	1680	3.6	96.40	-	94.75	-
	Mini power tiller	820	2.0	98.00	44.44	97.44	51.19

The field capacity and depth of cut of 3 tyne cultivator is found as 0.045 ha/hr and 7.5 cm respectively. The field capacity and depth of cut of 3 tyne rotavator is found as 0.072 ha/hr and 25 cm respectively. The field capacity of ridger is found as 0.4 ha/hr. Fuel consumption is 1 litre per hour. It can be also used for potato digging, harvesting by reaper, carrying farm residues if attached with trailer.

Technology and Innovation Adopted: Smt. Reena Bharti adopted mini power tiller equipped with cultivator, rotavator and ridge maker after getting training from KVK.

Achievements/ Results:

This implement is very much helpful for small and marginal farmers and works very efficiently in sandy loam or loamy soil. Less cost of this implement can enhance the productivity with reduced labour charges, time and cost of operation of any farm activities in compare to manual operation.

Contributing Factors for Success of the Enterprise: Scientific supervision from scientists of KVK, Turki and CAET, RPCAU and their continuous endless support.

REFERENCES

Author's Own Compilation