

Multi-purpose sprayer⁶⁶

CONSOLATION

Mulubhai Senjaliya (38) is a farmer cum artisan of Vavdi village in Junagadh district, Gujarat. He studied up to the 5th Standard and then worked for about five years in a diamond processing unit. Later on, he started a small puncture repair shop in his village which he ran for about four years and then handed it over to his cousin. Now he is fully involved in farming and owns five acres of land. He is married and has a son and two daughters.

Genesis

The increasing cost of cultivation and maintenance costs of conventional big tractors and the limitations of bullocks have forced the farmers to look for alternative faster and productive ways. Fodder problem in dry regions has further necessitated the need for farmers to use mechanical means of traction and farm operation. But the machines available in the market are the 18 HP-45 HP big tractors which are expensive, less efficient in fuel consumption and are out of reach of poor farmers. Mulubhai needed something which required little upkeep, to till his land, as he had no other person to help him. So he set himself the target of designing a small 5.5 HP tiller and a multipurpose farm machine. He got the various components from different markets and made this tiller cum sprayer with his own efforts. This innovation is a vital versatile product within the reach of a common farmer for his diverse needs.

When this small and compact tiller having a spraying system was evaluated by other peers of Mulubhai such as Bhanjibhai who has also designed a 10 HP tractor, they said that the tiller had been designed very well especially as Mulubhai has made it

very small by having the differential and the gear box together. Till date Mulubhai has made and supplied four units to other farmers. The diffusion potential of this device is high as it will be a boon for small farmers.

The innovation

The innovator has assembled a mini-tractor or a tiller unit which is a compact contraption and uses the stationary 5.5 HP irrigation engine along with the four speed and reverse gearbox and transmission of a Matador-307. The engine and gearbox is installed on a self-fabricated chassis having a four-wheel base. The front wheels use Maruti tyres and the rear wheels use Mitsubishi tyres. It has a diesel tank of 10 litres capacity. The unit is equipped with facilities such as steering; simple brake system etc to operate the vehicle. The tract width is 32 inches and the distance between the front and rear wheel is 54 inches. The device is started by hand cranking.

The unique feature of this machine is the spraying mechanism comprising a pressure pump and fabricated booms attached with nozzles on both sides of the machine. The pump can be operated with



Address

At. Vavdi (Parab)
Ta. Bhesan, Junagadh
Gujarat

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the engine power and it creates sufficient pressure resulting in a uniform pesticide spray. The engine can carry a load of one ton.

This small contraption also has provision to attach small farm implements behind it such as plough, cultivator, shallow and blade harrow and seed cum fertilizer drill to perform normal agricultural operations like shallow ploughing, inter-culturing and sowing. It has a speed of 25 km on the road and 6-8 km in the field. This device is suitable for small farms and for a garden.

Advantages

Easy manoeuvrability, low maintenance cost and fuel economy are the useful features of this contraption. The tiller/multipurpose sprayer also has very high fuel efficiency, which is claimed to be one litre of diesel per acre of cultivation. This device costs about Rs. 90,000

which is affordable to an ordinary farmer compared to bigger 18 HP tractors costing about two lakhs rupees. This device completes ploughing of one acre in two hours consuming 1.5 litres of diesel per hour. For sowing or harrowing of an acre, it takes one hour and consumes 0.75 litres of diesel.

A creative spirit

Very creative right from childhood, Mulubhai has always been experimenting with new ideas. He has extensive practical knowledge in the area of farm machinery and always tries to fabricate the implements /machines himself rather than buy the same from the open market. He dreams of developing an under-sea missile capable of hitting enemy targets.

