



Soil scrapper cum loader

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Hanumangarh, Rajasthan
and
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Uneven agricultural land is difficult to sow. Sometimes it also becomes important to remove extra soil, which may have deposited on the surface after rains. Resham Singh (56) and Kuldeep Singh (52) have independently developed machines, which could not only scrap soil and level the land but also fill tractor trailers with the scrapped soil. The machines are tractor PTO operated which take one and a half to two minutes to fill a 11 ft x 6 ft x 2.25 ft size trailer consuming about 5-6 liters of fuel per hour.

Hailing from Faridkot in Punjab, Resham Singh has a farm equipment and machinery workshop in Hanumangarh, Rajasthan where he shifted after his father's death. He studied till class tenth and thereafter took admission in ITI but could not continue due to poor financial conditions. He started working as a mason, tried Punjabi poetry for a while as well and then settled as mechanic/ fabricator. He has his wife, two sons and a daughter in his family. Prior to the soil

scrapper and loader, he had made a cutter and bending machine for sheets and rods for which he was awarded by the then collector of the district on Republic Day in 2006.

Born in a farmer's family, Kuldeep Singh grew up to be an expert mechanic and a fabricator. Though he has studied only upto class tenth, he has great sense of technology and the science behind it. As a child he was never interested in studies, and machines were a constant distraction. In early 1980's his family felt the need to have a harvester combine but due to its cost, it was beyond their reach. Kuldeep took it as a challenge and developed the harvester combine, which they also rented it to other farmers. He also has a wife, two sons and a daughter in his family.

Genesis of the innovation

In Hanumangarh, during monsoons, a lot of soil gets deposited in the farms, which raise the height of the

field. This soil level difference makes getting canal water difficult. Hence soil needs to be scrapped to bring the level to the original or below it. Depending upon the quantity of soil, this task is generally undertaken by a tractor mounted land scrapper or a JCB. Leveling and loading in case of land scrapper is cumbersome while costly in case of JCB. Resham Singh, who was known in his area for his expertise in making new and innovative machinery, was approached by a farmer in 2009 to develop a land leveling machine. He took up the challenge and could develop the machine as per the requirements in a few months' time.

Kuldeep was not able to sow his 40 *bigha* land as it was very uneven. He first tried to level the land using tractors but even after incurring much expenditure, he did not get satisfactory results. Using labour would have been quite costly. This made him think and he decided to develop a land leveling machine. He started



working on it in 2005 and finished it in 2009 after continuous work and improvement.

The land leveling and soil loading machine Resham Singh's land leveler cum loader is a tractor PTO operated machine, which scraps and collects soil/sand from the land surface through a scrapper blade and fills it in the tractor's trailer through a conveyor arrangement. It can cut 4" deep at a

time and takes about one and a half minute to fill a 11 ft x 6 ft x 2.25 ft size trailer (it sometimes takes less than a minute if the soil is not hard). It can be attached to any tractor of 50 hp and above. With this machine, tractor consumes about five to six liters of diesel in an hour. The machine has cutting width of 4 ft and sand is dropped from a height of 8.5 ft height.

Kuldeep Singh's land leveler cum loader is also a tractor PTO operated machine with the same function as above. It can cut 3" deep at a time and takes about

one minute to fill a 11 ft x 6 ft x 2.25 ft size trailer (less than a minute if the soil is not hard). It can also be attached to any tractor. About five to seven liters of diesel is consumed in an hour by a tractor with this machine. The machine has cutting width of 3 ft and sand is dropped from a height of 8 ft height. It is claimed that on an average both the machines can level about 1 bigha of land (5 acre) in a day.

While Resham Singh has sold forty machines in Hanumangarh and nearby areas, Kuldeep Singh claims to have sold over 200 machines in Punjab, Rajasthan, Haryana, Maharashtra and Gujarat. The machines are of great help to farmers as they can level the land and fill sand in the trolleys, which can then be sold in the market.

