THE HINDU

Reaping and windrowing machine to minimise grain loss

Labour shortage during harvesting time remains a major challenge in agriculture. Depending on the farmers' financial condition, manual workers or machines are hired to complete the work.

Mr. Bhagwan Singh Dangi from Sojanawale village in Madhya Pradesh said that the Governments' National Rural Employment Scheme has further worsened the situation today, with all villages facing severe manpower shortage. In many places farmers leave their fields fallow, and in some areas small farmers also join the bandwagon of workers to lay roads or desilt canals. But, for the few farmers who want to continue farming in spite of these existing problems, my reaping and windrowing machine should be a good alternative to manual labour.

Dual purpose

Mr. Dangi developed the machine, it can be used for both reaping and windrowing and also weeding and drilling operations (by attaching a separate accessory). Reaping involves cutting the crops and windrowing involves laying the cut stalks in the windrows for easy bundling.Some of the machines in the market were self-propelled reapers placing the harvested crop on one side of the machine leading to grain shattering.

Mr. Dangi explained, also large portions of the stalks were left lying on the field, requiring manual clearance before running the machine again in the field. Most of these machines are not suitable for small areas and could not make sharp bends. Many damaged the standing crops in the field while running.

Improved version

The machine developed by me is an improved reaper-cum-windrower comprising an engine, power transmission system, cutter blade, reel, conveyor, steering system and four pneumatic wheels.As the unit moves forward, the rotating hexagonal reel equipped with crop collectors in the front pushes the standing crop towards the cutter bar.

The windrower unit, consisting of two conveyor belts with iron lugs mounted on rollers and moving in opposite direction, drops the crop in the space between the tyres. This configuration overcomes the shattering loss as in the subsequent turn; the tyres do not run over the harvested crop. Mr. Dangi said that the machine requires one person to drive it and 2 persons in the rear to collect the produce. Apart from paddy, it can also be used to harvest wheat, pulses and soyabean.About 15 litres of diesel is required for harvesting five hectares in a day. It can make sharp bends and run in small fields without damaging the standing crop. The novelty of the reaping and windrowing machine lies in the design and spatial arrangement of the windrowing attachment, which results in minimal grain loss.

Neat row

The gathered crop drops inline between the tyres in a neat row for collection, and facilitates the next

parallel run. The cost of harvesting an hectare manually in the region at the rate of Rs 100 for 25 persons comes to Rs. 2,500. Using this machine the expenditure can be scaled down substantially, as just three persons are enough to do the job. Working with the available resources, he developed the first prototype using a 2 hp motor in 2001.He inspired that decided to start own workshop and took a loan against his property.

Engine capacity

The modified prime mover fitted with a 18 hp engine instead of the earlier 2 hp one and a centrally placed reaping and windrowing machine took him over a year and Rs.10 lakh to develop, test, and modify it to the present design. The device is planned to be priced at Rs. 60,000 (cost of the prime mover -tractor & transportation etc separate).

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