



Gender Friendly Tools and Equipment for Land Preparation and Sowing Operation in Indian Agriculture

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The traditional tools used by women worker involves operating in bending or squatting posture which causes drudgery and leads to serious health issue such as back pain, knee pain and sometime also causes injury while operating it. Therefore, women friendly some farm-tools and implements have been designed and developed by research organisations and state agriculture universities which are briefly described in this article.

Introduction

Agriculture has important place in Indian economy and main work force in it is human power. The women work force in agriculture and allied sectors is estimated to be around 97.5 million which amounts to about 37 % of the total rural workers in the country. The tools/equipment available for different farming operation are earlier designed for men workers keeping in mind male dominance in Indian agriculture environment and same was given to women despite of their suitability to work. However, women face different technological difficulties in operating these tools, thereby causing serious occupational health problems and ultimately reducing work efficiency. Most of the activity where women are involved includes sowing, transplanting, weeding, harvesting, threshing, and winnowing which are very drudgery prone. The traditional tools used by women worker involves operating in bending or squatting posture which causes drudgery and leads to serious health issue such as back pain, knee pain and sometime also causes injury to women operating it.

Therefore, there is need to develop tools/ equipment considering women suitability to work. A number of farm-tools and implements have been designed and developed by research organisations and state agriculture universities some of which are listed below with brief description.

1. Hand Ridger: It is used for making ridges/furrows. It consists of ridger and pulling beam with T- type handle. The equipment is operated by two women workers, one for pulling and another for pushing and guiding. The capacity of this machine is about 330 m²/ hr.

2. Seed Drill: It is used for row sowing seeds of wheat, soybean, maize, gram, pigeon pea etc. It consists of a



handle, hopper for seed and fertilizer, peg type ground wheel, a roller with cells and a hook for pulling the drill. The metering roller is directly mounted on the ground wheel shaft. The seed drill is operated by two workers, i.e. one for pulling and another for pushing and guiding. A rope is tied to hook provided in front of the seed drill for pulling. The capacity of this machine is about 430 m²/hr.



3. Naveen Dibbler: It is used for dibbling bold (like maize, soybean) or costly/scarce seeds in less area and for gap filling purpose. It consists of jaw type seed placement device, cell type metering mechanism, lever type power transmission system for roller and jaws and seed box with delivery system. After filling the desired seed to be sown in field, the worker should keep the dibbler at desired place and gently push the lever (front of dibbler) for opening the jaw so that seed may drop. The capacity of this machine is about 150 m²/hr.



4. Four-Row Paddy Drum Seeder: It is used for line sowing of sprouted paddy seeds in puddled field. It consists of drive wheels with lugs, drive shaft, hyperboloid shaped drums and swinging type pulling beam. The hyperboloid shaped drum enables free flow of seed towards the metering holes. In between two holes a baffle is provided for filling the drum with seeds. A swinging handle is provided with the unit for pulling the seeder. The drum may be filled with pre-germinated/sprouted paddy seeds to its half of capacity. The equipment is operated at a walking speed of 1-1.5 km/h in the puddled field. The capacity of this machine is about 920 m²/hr.



5. Two-Row Rice Transplanter: It is used for transplanting of 20–25 days old mat type rice seedlings at 3-4 leaf stage in four rows simultaneously under puddled conditions. It consists of frame, floats, seedling tray, operating handle, fingers (pickers), tray drive unit and depth control mechanism. Capacity of this machine is about 245 m²/hr.



Conclusion

These are some tools and equipment mostly used by women agricultural worker in India. Some of these tools are refined and modified as per the need of the women operator. By using these tools drudgery can be reduced during sowing and transplanting. Thus, issues of drudgery and health problems can be addressed by using these tools and also there would be improvement in their livelihood.