Drudgery Reducing Technologies for Women in Agriculture

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1. HAND RIDGER

Function

For making ridges in field to sow vegetables on ridges. The equipment can also be used for making furrows in field for irrigation.

Brief description

A manually operated hand ridger has been developed for making ridges. It consists of ridger and pulling beam with T- type handle. Field needs to be well prepared for getting better performance of equipment for making ridges/furrows. The equipment is operated by two women workers, one for pulling and another for pushing and guiding.

Capacity

330 m^2/h

Benefits

- About 67% saving in cardiac cost of worker per unit output with the ridger in comparison to the traditional method of making ridges.
- It avoids bending posture, which is generally adopted in traditional method with short handled tools for making ridges.
- Productivity of worker doubles with the equipment than traditional practice.

Cost: Rs. 700/-

Developed at: CIAE, Bhopal-NRCWA subcentre

Source of Availability

1. CIAE, Nabi Bagh, Berasia Road, Bhopal- 462 038.

2. SEED TREATMENT DRUM

Function

For uniform mixing of chemicals in seeds for its treatment before sowing.

Brief description

The seed treatment drum consists of frame, handle and cylindrical drum. The cylindrical drum is mounted on a tri-pod angle iron frame. Three pieces of mild steel flat are welded inside the drum for helping in uniform mixing. Prior to start mixing of chemicals, workers are advised for wearing plastic hand gloves and mask on nose for health protection. After adding chemicals in drum, add little water, close the lid of drum tightly and rotate the drum for 20 to 25 revolutions. After 1-2 minutes of completing the work, open the lid and take the treated seed in a separate bag/container. A batch of 20 kg seeds takes about 5-6 minutes for complete operation i.e. filling, treating and emptying. Hand gloves and mask should not be removed till completion of the work. Children's should be kept away from the work place. After completing the work, workers are advised for thorough washing of hand, legs, face and eyes.

Capacity

200 kg/h

Benefits

- Equipment provides safety to worker as direct contact with chemicals is avoided.
- Uniform mixing of chemical is done.
- It also avoids bending/squatting posture as done in traditional method of treating the seed.

Cost: Rs. 2000/-

Developed at: Commercially available

Source of Availability

1. CIAE, Nabi Bagh, Berasia Road, Bhopal- 462 038.
2. Commercially available.

3. FERTILIZER BROADCASTER

Function

For uniform application of granular fertilizer in field.

Brief description

Based on observations and feed back received from women workers during the experiment with commercially available fertilizer broadcaster, the broadcaster was refined to make it suitable for them using anthropometrical data of women workers. It consists of a hopper with agitator, spreading disk, gear, crank with handle, rear cushioning pad and straps with shoulder pad for mounting. The broadcaster needs to be cross-mounted, as it is a belly-mounted equipment. A woman worker should start the broadcasting work keeping 2.5 m away from bund of field and maintain 5 m spacing during the operation in subsequent passes. The quantity of fertilizer in hopper may be observed from its transparent lid and when required it may be filled. The broadcaster may be cleaned thoroughly after use. A woman can easily mount and dismount the refined broadcaster.

Capacity

1.15 ha/h

Benefits

- About 6% saving in cardiac cost of worker per ha with refined broadcaster in comparison to traditional practice was found.
- Uniform application of fertilizer is done.
- It saves workers from dust of urea at the time of application thereby enhancing safety of workers.
- Productivity of worker increased more than thrice with the equipment than traditional method.

Cost: Rs. 2500/-

Developed at: Commercial unit refined at CIAE, Bhopal-NRCWA subcentre

Source of Availability

1. CIAE, Nabi Bagh, Berasia Road, Bhopal- 462 038.
2. M/S Satish Agro Industries, 1/1, Maharani Road (Shrinath Chambers), Indore- 452 007.

4. CIAE SEED DRILL

Function

For row sowing seeds of wheat, soybean, maize, gram, pigeon pea etc.

Brief description

The CIAE seed drill have been refined for women workers using anthropometric data. 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 needs to be operated in well-prepared field. The seed drill is operated by two workers, i.e. one for pulling and another for pushing and guiding. Rope is tied to hook provided in front of the seed drill for pulling.

Capacity

430 m^2/h

Benefits

- Output is 18 times than traditional practice.
- Apart 87% saving in cardiac cost of workers per unit of output.
- By the use of seed drill, bending posture which is generally adopted in traditional method can be avoided.
- Line sowing is done with the equipment that promotes use of mechanical weeders for weeding thereby reducing cost and drudgery during weeding operation.
- Seed saving is also achieved.

Cost: Rs. 5000/-

Developed at: CIAE, Bhopal

Source of Availability

1. CIAE, Nabi Bagh, Berasia Road, Bhopal- 462 038.

5. PAU SEED DRILL

Function

For row sowing seeds of wheat, soybean, maize, gram, pigeon pea etc.

Brief description

The PAU seed drill has been refined for women workers using anthropometric data. It consists of a handle, hopper for seed, a ground wheel, a fluted roller and a hook for pulling the drill. The metering of seed is done with fluted roller. It is operated from the ground wheel shaft through chain and sprocket mechanism. The seed drill needs to be operated in well-prepared field. The seed drill is operated by two workers, i.e. one for pulling and another for pushing and guiding. Rope is tied to hook provided in front of the seed drill for pulling.

Capacity

430 m^2/h

Benefits

- Output is 18 times than traditional practice.
- Apart from 87% saving in cardiac cost of workers per unit of output.
- By the use of seed drill, bending posture which is generally adopted in traditional method can be avoided.
- Line sowing is done with the equipment that promotes use of mechanical weeders for weeding thereby reducing cost and drudgery during weeding operation.
- Seed saving is also achieved.

Cost: Rs. 5000/-

Developed at: PAU Ludhiana and refined at CIAE, Bhopal-NRCWA subcentre

Source of Availability

1. CIAE, Nabi Bagh, Berasia Road, Bhopal- 462 038.

6. NAVEEN DIBBLER

Function

For dibbling bold (like maize, soybean) or costly/scarce seeds in less area and for gap filling purpose.

Brief description

This dibbler 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.

Capacity

150 m^2/h

Benefits

- About 13% saving in cardiac cost of workers per unit of output with the dibbler as compared to traditional.
- It also avoids bending posture, which is generally adopted in traditional method.
- Line sowing is done with the equipment that promotes use of mechanical weeders thereby reducing drudgery and cost during weeding operation.
- Seed saving is also achieved.

Cost: Rs. 700/-

Developed at: CIAE, Bhopal

Source of Availability

1. CIAE, Nabi Bagh, Berasia Road, Bhopal- 462 038.

7. ROTARY DIBBLER

Function

For dibbling bold or medium or costly/ scarce seeds in less area or gap filling of seeds in soybean, sorghum and maize crops.

Brief description

It is a manually operated push type equipment for dibbling bold and medium size seeds in rows at uniform spacing in well prepared soil.

Capacity

500 m^2/h.

Benefits

It is suitable for dibbling bold seeds like maize, soybean and pigeonpea.

Cost: Rs. 2300/-

Developed at: CIAE, Bhopal

Source of Availability

1. CIAE, Nabi Bagh, Berasia Road, Bhopal- 462 038.

8. FOUR-ROW PADDY DRUM SEEDER

Function

For line sowing of sprouted paddy seeds in puddled field.

Brief description

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. It has 18 holes of 10 mm dia for dropping the sprouted seed in puddled field. The holes can be plugged depending on sprouted seeds and seed rate. A swinging handle is provided with the unit for pulling the seeder. Drum may be filled with pre-germinated/sprouted paddy seeds to its half of capacity. The method to prepare sprouted paddy seed is given in Annexure-II. After filling the drum, the lid of the drum may be closed and locked. The shallow ploughing/puddling of the field is required for proper operation of the equipment. After puddling excess water may be drained. From next morning operate the equipment at a walking speed of 1-1.5 km/h in the puddled field. The wheel impression during the previous pass will serve as a marker for the subsequent passes. During the operation of the equipment, dropping of seeds through the holes may be observed and drums may be refilled when the drum gets empty.

Capacity

920 m^2/h

Benefits

- Light in weight, and easy to transport and handle.
- Uniformity in seed sowing.
- Hill dropping of seed is achieved and continuous drilling is eliminated.
- Seed saving is achieved with the equipment as compared to traditional method.
- Line sowing is done with the equipment that promotes use of mechanical weeders thereby reducing drudgery and cost during weeding operation.

Cost: Rs. 6000/-

Developed at: TNAU, Coimbatore

Source of Availability

1. Department of Farm Machinery, Agricultural Engineering College & Research Institute, TNAU, Coimbatore- 641 003.

9. TWO-ROW RICE TRANSPLANTER

Function

For transplanting of 20–25 days old mat type rice seedlings (at 3-4 leaf stage) in two rows simultaneously under puddled conditions.

Brief description

It consists of frame, floats, seedling tray, operating handle, fingers (pickers), tray drive unit and depth control mechanism. To operate the equipment, a mat type nursery is raised. The size of mat is 22 cm in width, 45 cm in length and thickness of soil of 1.5 cm. After puddling excess water (leaving 25-50 mm of water) is drained and from next morning the equipment can be operated. The seedling mats may be loaded on the machine tray after sprinkling little water over the tray surface for smooth sliding of mat. After lifting the operating handle, it may be pushed down gently to push the seedlings kept in tray for transplanting. A worker walks backward for operation of the rice transplanter and pulls it after every stroke. The seedlings mats may reloaded on the tray of equipment when seedlings are about to exhaust. After completion of each day of work, the transplanter may be washed with water.

Capacity

61 m^2/h

Benefits

- Transplanting can be done in two rows simultaneously with the equipment.
- 16% saving in cardiac cost of workers per unit area.
- It avoids bending postures which is adopted in traditional method.
- Line sowing helps in promoting the use of mechanical weeders thereby reducing drudgery and cost during weeding operation.
- Productivity of worker is increased by 79% as compared to traditional method.

Cost: Rs. 6000/-

Developed at: CRRI, Cuttack

Source of Availability

1. Central Rice Research Institute, Cuttack, Orissa – 753 006.
2. M/s. Siddeshwar Engineering, Bidyadharpur, Cuttack.

10. TWIN WHEEL HOE

Function

For weeding and interculture in up land row crops in black soil region.

Brief description

Twin wheel hoe consists of two wheels, frame, V-blade fixed on a tyne, U-clamp and a handle. The cutting and uprooting of weeds in field is done through push and pull type action of the equipment. The equipment is operated at optimum soil moisture condition and preferably after 20-25 days of sowing i.e. when the weeds are small i.e. 1 to 3 cm height for better weeding performance.

Capacity

150 m^2/h

Benefits

- About 43 % saving in cardiac cost of workers per unit of output.
- It avoids bending/squatting postures, which is generally adopted with short handled hand hoe in traditional method.
- Productivity of worker increased more than three times with the equipment than traditional method.

Cost: Rs. 800/-

Developed at: CIAE, Bhopal

Source of Availability

1. CIAE, Nabi Bagh, Berasia Road, Bhopal- 462 038.

11. IMPROVED SICKLE

Function

For harvesting wheat, rice, soybean, chickpea, grasses and thin stalked crops.

Brief description

It consists of serrated blade, ferrule and wooden handle. Cutting of crop stalk is being done with the improved (serrated) sickle by sawing action as against by impact or pulling action in case of local (plain) sickle. Due its less weight i.e. about 180 g the fatigue coming on wrist is less and the drudgery involved in harvesting is reduced as compared to local sickles which are heavier i.e. weighing about 350 g.

Capacity

150 m^2/h

Benefits

- About 15% saving in cardiac cost of workers per unit of output with improved sickle as compared to local sickle.
- Serrated sickles does not require the sharpening of cutting edge frequently.
- It also provides safety to the workers due to its better construction.

Cost: Rs. 60/-

Developed at: CIAE, Bhopal and Dr. BSKKV, Dapoli

Source of Availability

1. CIAE, Nabi Bagh, Berasia Road, Bhopal- 462 038.
2. College of Agricultural Engineering and Technology, Dr.BSKKV, Dapoli, District Ratnagiri - 415 712 (Maharashtra).
3. Smita Industries, 191/C, Chinchwad, Pune- 11033.

12. GROUNDNUT DECORTICATOR (SITTING TYPE)

Function

For separating kernels from groundnut pods.

Brief description

A sitting groundnut decorticator is an oscillatory type device having cast iron shoes with projections for decortication of groundnut pods. It consist of frame, handle, oscillating arm and sieve with oblong hole. It is operated by a woman worker in sitting posture for which a stool is provided on a wooden platform. The pods are fed in batches of nearly 1.5 kg i.e. up to half of its hopper capacity so that oscillating arm can easily be operated. For proper decortication, the shoes, which are mounted on oscillating arm need to be adjusted. The women workers prefer the sitting type groundnut decorticator due to its low requirement of force and less cardiac cost.

Capacity

30 kg/h

Benefits

- About 79% saving in cardiac cost of workers per unit of output with the groundnut decorticator as compared to traditional practice.
- The productivity of workers increased tremendously than traditional practice apart from safety of workers.
- The reduction of drudgery with the equipment per kg of pods decorticated is to the tune of 74 and 79% in case of standing and sitting type decorticator respectively.

Cost: Rs. 2400/-

Developed at: CIAE, Bhopal

Source of Availability

1. CIAE, Nabi Bagh, Berasia Road, Bhopal- 462 038.

13. GROUNDNUT STRIPPER

Function

For stripping on groundnut pods.

Brief description

The groundnut stripper consists of a square frame of vertical legs and a horizontal strip of expanded metal fixed on each side of the frame in the form of comb. The stripping of the pods is accomplished by drawing a handful of vines across the comb with a slight force. The structure facilitates its use by four women simultaneously. A small adjustable stool was fabricated for the operator to sit and perform the stripping operation. The height of the stool can be adjusted from 28-40 cm. this design eliminates knee pain and numbness while stripping in sitting posture at ground level. The frame was provided with telescopic support legs which enable the subjects to adjust the height of the frame from the ground level to suit their convenience to avoid postural discomfort. Also the hitting of the elbow against the abdomen while stripping is eliminated.

Capacity

11 kg/h/women

Benefits

- Higher output i.e. 350 kg of pods/day can be obtained as against 200 kg in case of conventional stripping.
- Squatting posture is avoided which minimizes stress at knee.
- About 79% saving in cardiac cost of workers per unit of output with the groundnut stripper as compared to conventional practice.

Cost: Rs. 2500/-

Developed at: TNAU, Coimbatore

Source of Availability

1. Department of Farm Machinery, Agricultural Engineering College & Research Institute, TNAU, Coimbatore- 641 003.
2. CIAE, Nabi Bagh, Berasia Road, Bhopal- 462 038.

14. TUBULAR MAIZE SHELLER

Function

For shelling maize from dehusked cob.

Brief description

It is made of mild steel sheet and is octagonal in shape. Four tapered fins are provided in the maize sheller, which helps in shelling the maize grain from dehusked cobs. A cob is inserted into it and by twisting action shelling is achieved.

Capacity

27 kg/h

Benefits

- About 15% saving in cardiac cost of workers per unit of output in comparison to the traditional practice.
- The productivity of workers increased 1.6 times than traditional practice i.e. shelling with the help of sickle.
- The chances of injury to fingers are eliminated thus making the operation safer for workers.

Cost: Rs. 60/-

Developed at: CIAE, Bhopal

Source of Availability

1. CIAE, Nabi Bagh, Berasia Road, Bhopal- 462 038.

15. ROTARY MAIZE SHELLER

Function

For shelling maize from dehusked cob.

Brief description

It is a manually operated equipment consisting of a frame, a flywheel, a hopper and three shelling gears. With one hand a person operates the equipment whereas cobs are fed by the other hand one by one. The shelled cobs come out through the port on other side.

Capacity

73 kg/h

Benefits

- Output is very high and the equipment is suitable for farmers growing large quantity of maize.
- About 32% saving in cardiac cost of workers per unit of output in comparison to the traditional practice.
- The chances of injury to fingers are eliminated thus making the operation safer for workers.

Cost: Rs. 6000/-

Developed at: Commercially available

Source of Availability

1. Sherpur Agro Industries, G.T. Road, Focal Point, Ludhiana - 141 010, Punjab, India.

16. CONO WEEDER

Function

Uprooting and burying of weeds in between standing rows of rice crop in wetlands.

Brief description

Two truncated rollers one behind other are fitted at the bottom of a long handle. The conical rollers have serrated blades on the periphery. A float provided in front portion prevents the unit from sinking into the soil. The cono weeder can also be used for trampling green manure crop in addition to weeding operation. It disturbs the top soil and increases aeration also. The equipment is operated in standing posture thus avoiding bending involved during uprooting of weeds by hands in traditional practice.

Capacity

120 m^2/h

Benefits

- Bending posture is avoided thus reducing drudgery of workers in weeding operation in wetlands.
- Output is increased significantly.

Cost: Rs. 1900/-

Developed at: TNAU, Coimbatore

Source of Availability

1. Department of Farm Machinery, Agricultural Engineering College & Research Institute, TNAU, Coimbatore- 641 003.

17. COTTON STALK PULLER (JAW TYPE)

Function

To uproot cotton plant stalks from soil.

Brief description

The cotton stalk puller consists of long handle designed in such a way that when the handle is moved downwards, the front jaws firmly hold the stalk due to press plate hinged at the bottom of the main frame. On further downward movement the press plate acts as a pivot and the front jaw portion gets lifted up along the stalk. Once the operation is over the press plate comes to its original position with help of a tension spring fitted between press plate and mainframe. The unit can easily be moved to next plant with the help of ground wheel.

Capacity

46 m^2/h

Benefits

- Bending posture is avoided thus reducing drudgery and chances of backache of workers in cotton stalk pulling operation.

Cost: Rs. 1200/-

Developed at: Commercially available

Source of Availability

1. Gujarat Agro Industries Corporation Ltd. Agro Service Complex, Juhapura, Sarkhej Road, Ahmedabad – 380 055.
2. Commercially available.

18. SUGARCANE STRIPPER

Function

For stripping of sugarcane.

Brief description

It is a hand tool for stripping of leaves and detopping of cane after harvest. The stripper works by separating and pushing the leaf sheaths away from stalk. A knife is welded on the stem of the stripper for detopping of canes and for cleaning roots etc.

Capacity

46 kg/h

Benefits

- It helps to reduce the drudgery involved and chances of injury to workers in sugarcane stripping operation.

Cost: Rs. 220/-

Developed at: IISR Lucknow and refined at OUAT Bhubaneswar

Source of Availability

1. Department of Farm Machinery and Power, College of Agricultural Engineering and Technology, OUAT, Bhubaneswar- 751 003.

19. PEDAL OPERATED PADDY THRESHER

Function

For threshing of paddy.

Brief description

This thresher consists of a cylinder with wooden/aluminum strips. The wire loops are embedded/ welded on these strips. The cylinder is given a rotary motion from the foot pedal through a power transmission system. The paddy bundles are threshed with hold method.

Capacity

35 kg/h

Benefits

- It helps to reduce the drudgery involved in paddy threshing operation as bending posture is avoided and arms are not to be raised for above shoulder height as in case of traditional method i.e. beating on a platform/stone.

Cost: Rs. 5500/-

Developed at: OUAT, Bhubaneswar

Source of Availability

1. Department of Farm Machinery and Power, College of Agricultural Engineering and Technology, OUAT, Bhubaneswar- 751 003.

20. FRUIT HARVESTER

Function

Plucking of fruits from orchard trees.

Brief description

The manually operated fruit harvester consists of main body of PVC having cylindrical shape. The upper end of the body is closed and fixed with two fingers cut in V-shape and with sharp blades. An opening is provided on the body for entry of the fruits to be harvested. The bottom end of the body is open to which nylon net for collecting the fruits is tied. On the back surface of the body a metal holder is fixed to fix the aluminum pipe of required length. The length of the cutting blade was increased from 30 mm to 70 mm to increase the comfort of the worker.

Capacity

420 fruits/h

Benefits

- Damage to the fruit is avoided.
- Operation is made safer as the worker does not have to climb on the tree and the chances of injury are eliminated.

Cost: Rs. 600/-

Developed at: Dr BSKKV Dapoli and evaluated/refined at TNAU Coimbtore

Source of Availability

1. College of Agricultural Engineering and Technology, Dr BSKKV, Dapoli, District Ratnagiri-415 712 (Maharashtra).
2. Department of Farm Machinery, Agricultural Engineering College & Research Institute, TNAU, Coimbatore- 641 003.

21. HANGING TYPE GRAIN CLEANER WITH SACK HOLDER

Function

For separating impurities like stubbles, chaff, dirt and broken received with grain after threshing.

Brief description

It consists of main frame, grading screen, draper rod, rubber grip over handle, shutter etc. Four ropes are tied on the hooks provided on main frame of cleaner and hanged on any elevated point or hooks attached to the ceiling. It is operated in oscillating mode. The handle height of cleaner from ground should be at waist height of operator. Based on the size of grain, screen may be selected. Slow movement of cleaner is required after pouring grain on top of screen so that grain goes slowly down the cleaner box and chaff/ stubbles are remained on top of screen. After collecting the chaff from top of screen, gentle movement of cleaner is done to remove dirt, broken and finer chaff etc. present in the grain. Thereafter, it is taken out in a bag that is hanged on a sack holder by opening shutter of cleaner.

Capacity

225 kg/h

Benefits

- Apart from 63% saving in cardiac cost of worker per unit of output, the productivity of the worker increased more than four times as compared to traditional thereby reducing drudgery.

Cost: Rs. 5700/-

Developed at: CIAE, Bhopal

Source of Availability

1. CIAE, Nabi Bagh, Berasia Road, Bhopal- 462 038.

22. PADDY WINNOWER

Function

For cleaning grain after harvesting.

Brief description

This machine is easily operated and very useful for women farm workers. It consists of main frame, handle, gear mechanism, volute case, fan, hopper, outlets for clean grain and chaff. This machine can be operated by women worker by using hands in standing posture. Two women workers are required for operation of this machine, one woman operates the machine and other woman feeds the hopper and separates the cleaned grain. The machine can be easily operated by women while seating on chair or stool.

Capacity

242 kg/h

Benefits

- This machine can be easily operated as there no need of waiting for air flow as required in traditional cleaning.
- This machine can be operated under shade or in the workshop where grain cannot be damaged due to rain etc.

Cost: Rs. 6000/-

Developed at: CRRI Cuttack

Source of Availability

1. Central Rice Research Institute, Cuttack, Orissa – 753 006.
2. M/s. Siddeshwar Engineering, Bidyadharpur, Cuttack.

23. DOUBLE REFLECTOR BOX TYPE SOLAR COOKER

Function

For cooking and roasting of food items.

Brief description

The double reflector box type solar cooker is provided with twin mirror reflector to add solar heat input and save cooking time as compared to conventional cooker with single mirror reflector. Size of the solar cooker box is 0.6 m x 0.6 m x 0.25 m. weight of the solar cooker is 19 kg. The non-breakable acrylic mirror is provided to reducing maintenance. There are four cooking pots provided to keep food item for cooking. The cooking time of rice and pulses is 1.5-2.0 h.

Capacity

Cooking food for 4-5 members.

Benefits:

- It reduces cooking time by 15-20% as compared to single reflector type cooker.
- The solar cooker saves the health of the women, because it does not emit smoke during cooking.

Cost: Rs. 4500/-

Developed at: CIAE, Bhopal

Source of Availability

1. CIAE, Nabi Bagh, Berasia Road, Bhopal- 462 038.
2. M/s Hinglose Energy System, Govindpura, Bhopal

24. BHINDI PLUCKER

Function

To protect worker from thorny/chemical materials during bhindi harvesting.

Brief description

It fits into the hand properly, with the help of two rings - one in thumb and another in little finger. Force to cut the pedicel is exerted by pressing these two fingers together.

Capacity

5 to 10 kg/h

Benefit

- It is a tool which helps on plucking of Bhindi (Lady's finger) without causing any itching or discomfort to skin.

Cost: Rs. 35/-

Developed at: Smita Industries, Pune

Source of Availability

1. CIAE, Nabi Bagh, Berasia Road, Bhopal- 462 038.
2. Smita Industries, 191/C, Chinchwad, Pune-411033.

25. WHEEL BARROW

Function

Carrying of agricultural materials

Brief description

A wheel barrow is made of good quality mild steel sheet of 16 gauge (1.60 mm). It is found very useful to carry agricultural materials from one place to another. It is designed in such a way that the person does not have to exert much force in pulling/pushing the cart.

Capacity

100 kg of load easily carried out by wheel barrow

Benefit

- A large amount of material can be carried from one place to another with less drudgery.

Cost: Rs. 2000/-

Developed at: Commercially available

Source of Availability

Commercially available.

26. GRAIN MILL

Function

For making flour from grains/ other items.

Brief description

It is 1.0 hp single phase electric motor operated equipment for grinding of cereals, coriander and pulses to produce grits/ flour powder. It consists of hopper, feed adjuster, vertical grinding wheel etc.

Capacity

10-20 kg/h

Cost: Rs. 19000/- (with motar)

Developed at: CIAE, Bhopal

Source of Availability

1. CIAE, Nabi Bagh, Berasia Road, Bhopal- 462 038.

27. HAND OPERATED CHAFF CUTTER WITH SAFETY DEVICES

Function

For cutting chaff/fodder/stalk into small pieces

Brief description

This is a machine for cutting the chaff into the small pieces. The unit is provided with safety devices as per the Indian standard IS 7898. The machine is operated by rotating a flywheel on which the blades are mounted. Another person feeds the forage or grass through the feeding through. Dry or green fodder can easily be chopped with the machine.

Benefits

- Safe in operation.
- Finger and hand Injuries are prevented.
- Wastage of fodder is reduced.

Cost: Rs. 7000/-

Developed at: Commercially available

Source of Availability

1. CIAE, Nabi Bagh, Berasia Road, Bhopal- 462 038.
2. Sadhu Singh & Sons, PO Box, GT Road, Goraya, Dist. Jalandhar- 144409, Punjab.

28. DAL MILL

Function

Preparation of Dal from whole pulse grain

Brief description

It is 2.0 hp electric motor operated equipment for dehusking and splitting of pigeon pea, black gram, green gram and lentil. The beans to be milled are first soaked in water, sun-dried and later on fed into the unit to get the Dal in two passes.

Capacity

100 kg/h

Cost: Rs. 30000/- (with motar)

Developed at: CIAE, Bhopal

Source of Availability

1. CIAE, Nabi Bagh, Berasia Road, Bhopal- 462 038.

29. COOK STOVE

Function
For cooking

Brief description

It consists of concentric grates made of perforated mild sheets. Fuel is fed in the annular space and ignited from below. The whole unit is supported on a mild steel grill to drive out the ashes to the bottom. A double walled aluminum reflector having asbestos insulation is placed around the burning bed to prevent convection and radiation to the surroundings.

Capacity

On a charge of about 450 to 500 grams of fuel it can burn for one hour, which is sufficient for the cooking needs of a small family.

Cost: Rs. 1000/-

Developed at: CIAE, Bhopal

Source of Availability

1. CIAE, Nabi Bagh, Berasia Road, Bhopal- 462 038.

30. TEA PLUCKER SCISSOR TYPE

Function

For plucking tea leaves

Brief description

While plucking tea leaves skin of fingers and hands get injuries due to chemicals. Using scissor type tea plucker hand/finger contact is avoided thereby eliminating skin problem.

Capacity

8.6 kg/h

Benefits

- Economic benefit: Rs. 1000/unit/year
- The output is 40 % higher when compared with conventional method of hand picking.
- Cardiac cost for tea plucking with is less (295 betas/kg of tea leaf) as compared to traditional plucking (580 beats/ kg of tea leaves).
- Results in 32 % saving in cost and 40 % saving in time when compared with conventional hand picking method.

Cost: Rs. 450/-

Developed at: TNAU, Coimbatore

Source of Availability

1 Department of Farm Machinery, Agricultural Engineering College & Research Institute, TNAU, Coimbatore- 641 003.

31. ROTARY ARECANUT DEHUSKER

Function
For dehusking arecanuts

Brief description

The dehusker consists of the hopper, lead screw, cutting blade and handle. The graded nuts fed to lead screw through hopper. The nut got compressed between the lead screw and cutting plate. The teeth on the cutting plate peeled off the husk and the kernel ejected by the leads of on the lead screw and thus the husk separated.

Capacity

5 kg/h

Benefit

- Possibility of injuries to fingers and palm totally eliminated

Cost: Rs. 3000/-

Developed at: Dr.BSKKV, Dapoli

Source of Availability

1. College of Agricultural Engineering and Technology, Dr.BSKKV, Dapoli, District Ratnagiri-415 712 (Maharashtra).
2. M/s Krupa Fuel Engg. Works
   Gimone, Dapoli-415712,
   Dist. Ratnagiri (M.S.)