Rotavator

It consists of a steel frame, a rotary shaft on which blades are mounted, power transmission system, and gearbox. The blades are of L-type, made from medium carbon steel or alloy steel, hardened and tempered to suitable hardness. The PTO of tractor drives the rotavator. Rotary motion of the PTO is transmitted to the shaft carrying the blades through gearbox and transmission system. A good seedbed and pulverization of the soil is achieved in a single pass of the rotavator. The detailed technical specifications are as follows:

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Tractor PTO operated Rotavator</td>
</tr>
<tr>
<td>Power source (hp)</td>
<td>minimum of 35 HP Tractor</td>
</tr>
<tr>
<td>Hitch Type</td>
<td>three point, CAT-II</td>
</tr>
<tr>
<td>Length (mm)</td>
<td>1760-2080</td>
</tr>
<tr>
<td>Width (mm)</td>
<td>950-1050</td>
</tr>
<tr>
<td>Height (mm)</td>
<td>935-1110</td>
</tr>
<tr>
<td>Working width (mm)</td>
<td>1000-2000 (Different sizes)</td>
</tr>
<tr>
<td>Type of blade</td>
<td>L-shape/ J shape</td>
</tr>
<tr>
<td>Thickness of blade (mm)</td>
<td>7-10</td>
</tr>
<tr>
<td>No. of Blades</td>
<td>minimum of 36 (Depending on sizes)</td>
</tr>
<tr>
<td>Distance between consecutive flanges (mm)</td>
<td>213-220</td>
</tr>
<tr>
<td>Total number of flanges</td>
<td>6-8</td>
</tr>
<tr>
<td>Number of blades per flange</td>
<td>6</td>
</tr>
<tr>
<td>Diameter of rotor shaft (mm)</td>
<td>70-90</td>
</tr>
<tr>
<td>Rotor diameter (mm)</td>
<td>420-435</td>
</tr>
<tr>
<td>Revolution of rotor shaft (rpm)</td>
<td>210-237 (Single speed/ Multi Speed Variants)</td>
</tr>
<tr>
<td>Side drive</td>
<td>Gear drive/ Chain drive variants</td>
</tr>
<tr>
<td>Rotor seals</td>
<td>5 Lip super seal make</td>
</tr>
<tr>
<td>PTO Connector</td>
<td>Propeller shaft with universal joints</td>
</tr>
</tbody>
</table>

The workmanship should be of high quality. It should not have sharp projections. All the moving parts should be properly protected. The machine should be painted with high quality paint after applying proper primer. The machine should be warranted for two years for any manufacturing defects.
ROTARY PLOUGH (Power Harrow) SPECIFICATION

The rotary power harrow is used for mechanical soil tillage and seed-bed preparation on farms and in vineyards and orchards, as well as for row crops. Moisture remains in the soil and the water balance of the soil is maintained since the soil is not turned up as it is tilled. The vertically rotating cutters also prevent compaction of the soil, thus resulting in optimum preparation of the seed-beds.

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working Width</td>
<td>145 to 230 cms</td>
</tr>
<tr>
<td>No. of Blades</td>
<td>12-18</td>
</tr>
<tr>
<td>Gear Box type</td>
<td>Multi speed gear box</td>
</tr>
<tr>
<td>Input RPM</td>
<td>540 or 1000</td>
</tr>
<tr>
<td>Rotor RPM @ 540 PTO</td>
<td>240 to 300 rpm</td>
</tr>
<tr>
<td>Rotor drive type</td>
<td>Gear drive with oil bath</td>
</tr>
<tr>
<td>Distance between Rotors</td>
<td>250 mm</td>
</tr>
<tr>
<td>Blade Dimension</td>
<td>Thickness 12 to 15 mm, Length 280 to 290 mm</td>
</tr>
<tr>
<td>Blade Material</td>
<td>Boron steel</td>
</tr>
<tr>
<td>Blade Mounting</td>
<td>Bolt and Nut with stone protection guard</td>
</tr>
<tr>
<td>Leveling device</td>
<td>Rear Mounted with height adjustment</td>
</tr>
<tr>
<td>Tractor attachment</td>
<td>Rear 3 point linkage, Cat II</td>
</tr>
<tr>
<td>Drive Shaft</td>
<td>Telescopic Cardan shaft with universal joints and shear bolt safety device</td>
</tr>
</tbody>
</table>

The workmanship should be of high quality. It should not have sharp projections. All the moving parts should be properly protected. The machine should be painted with high quality paint after applying proper primer. The machine should be warranted for two years for any manufacturing defects.
Laser Guided Land Leveller

The laser guided land leveller should have the following components:

Self Levelled laser transmitter with a minimum operating range of 600m (diameter), with self levelling accuracy of 3.0mm at 30meters or more.

Laser eye receiver for field survey

Laser receiver with beam acceptance angle 360 deg

Automatic control box

Bucket scrapper- double tyre

Rigid mast with arms and height adjustment facility

Automatic double acting hydraulic value assembly

Tripod stand

Grade rod for survey

The workmanship should be of high quality. It should not have sharp projections. All the moving parts should be properly protected. The machine should be painted with high quality paint after applying proper primer. The machine should be warranted for two years for any manufacturing defects.
**Sub Soiler**

The machine is used to break hardpan of the soil, loosening of the soil and helps the water to seep into the soil for improving drainage. It consists of beam made of high carbon steel, beam and lower supports which are flanged at upper edges for rigidity, hollow steel adaptor welded to bottom end of the beam to accommodate share base, share base having square section, share plate made from high carbon steel and shank drilled and counter bored for set board which secures the base in the adaptor. Share plate is made from high carbon steel, hardened and tempered to suitable hardness. Two symmetrically located bolt holes allow reversibility of share. The working depth of the subsoiler is controlled by hydraulic system and linkage of tractor.

Type: Tractor operated 3 point linkage mounted
Power source (hp): minimum of 35 HP Tractor
Hitch Type: three point, CAT-II
No. of Bottoms: 1 to 2
Depth of operation: 18-24 inches
Shovels: reversible, easily replaceable and suitably hardened
Weight: 65kgs per bottom
Post Hole Digger

Post Hole Diggers are ideal for a wide variety of applications—like fencing/tree plantations. Auger size can be decided as per the required hole size. The digging gets done at a faster pace and neater way as compared to manual digging. The machine is a tractor PTO operated with the power being utilized to move the auger through a gear box. The detailed technical specifications are as follows:

- **Prime Mover:** 30 H.P or above Tractor
- **Transmission:** Three point linkage, CAT-II
- **Auger Sizes:** 6” to 36”
- **Gear Box:** Should be compatible with various H.P tractors, input RPM- 540, preferably with 3:1 ratio
- **Augur Blades:** Blades should be good quality (boron or other material), should be able to withstand the erosion/shear, should be easily replaceable
- **Frame:** Heavy Duty Pipes (rectangular or round)

The workmanship should be of high quality. It should not have sharp projections. All the moving parts should be properly protected. The machine should be painted with high quality paint after applying proper primer. The machine should be warranted for two years for any manufacturing defects. The machine should be easily serviceable with good availability of spare parts.
Seed cum Fertilizer Drill

The seed cum fertilizer drill machine consists of seed box, fertilizer box, seed metering mechanism, fertilizer metering mechanism, seed tubes, furrow openers, seed rate adjusting lever and transport cum power transmitting wheel. The fluted rollers are driven by a shaft. Fluted rollers, which are mounted at the bottom of the seed box, receive the seeds into longitudinal grooves of fluted roller and expel them in the seed tube attached to the furrow openers. By shifting the rollers sideways, the length of the grooves exposed to the seed, can be increased or decreased and hence the amount of seed sown is changed. The main frame specifications are as below:

Source of Power: 35 H.P tractor or more
Ground wheel: should be provided
Furrow openers: Double ended shovel
No of furrow opener: 9 to 15
Separate Hoppers (trapezoidal shape) for Fertilizer and Seeds with mechanism for feed rate control. the hoppers should be sufficiently covered to prevent the entry of water.

Provision for closing seed and fertilizer discharge should be provided
Metering Mechanism: for seeds: Fluted roller
for fertilizer: Gravity feed or corrugated roller type
The seed and fertilizer rate shall be easily adjustable
Power to metering mechanism: Lugged ground wheel Through chain and sprockets
Fertilizer placement: before the seed in the same line preferably 25 mm to the side of seed
Seed & fertilizer tubes should be made of transparent plastic. The thickness of the plastic tubes shall be a minimum of 25mm.

The drill shall be able to sow wheat and may be other crops such as barley, soyabean etc. and also shall be able to meter all types of granular fertilizers

Type of hitch: three point linkage CAT-II
Row spacing should be adjustable ranging from 150 to 225 mm preferably in steps of 25 mm
The weight of tractor mounted drill including the weight of seed and fertilizer filled at the rated capacity of the box shall not exceed 300 N/Kw.

The workmanship should be of high quality. It should not have sharp projections. All the moving parts should be properly protected. The machine should be painted with high
quality paint after applying proper primer. The machine should be warranted for two years for any manufacturing defects.
Zero till Drill

Zero till drill consists of frame, seed box, fertilizer box, seed metering mechanism, fertilizer metering mechanism, seed tubes, inverted T-type furrow openers, seed adjusting lever and transport cum power transmitting wheel. The frame is made from mild steel box section. The tynes are mounted with the help of clamps, to obtain infinite row spacing. zero till drills should be capable of sowing wheat crop in unprepared field after harvesting of paddy. The Detailed technical specifications are as follows:

Source of Power:  35 H.P tractor or more
Ground wheel: should be provided
Furrow openers: inverted T-type
No of furrow opener: 9 to 15
Separate Hoppers ( trapezoidal shape) for Fertilizer and Seeds with mechanism for feed rate control. the hoppers should be sufficiently covered to prevent the entry of water.
Provision for closing seed and fertilizer discharge should be provided
Metering Mechanism: for seeds: Fluted roller
  for fertilizer: Gravity feed or corrugated roller type
The seed and fertilizer rate shall be easily adjustable
Power to metering mechanism: Lugged ground wheel Through chain and sprockets
Fertilizer placement: before the seed in the same line preferably 25 mm to the side of seed
Seed & fertilizer tubes should be made of transparent plastic. The thickness of the plastic tubes shall be a minimum of 25mm .
The drill shall be able to sow wheat and may be other crops such as barley, soyabean etc. and also shall be able to meter all types of granular fertilizers
Type of hitch: three point linkage CAT-II
Row spacing should be adjustable ranging from 150 to 225 mm preferably in steps of 25 mm
The weight of tractor mounted drill including the weight of seed and fertilizer filled at the rated capacity of the box shall not exceed 300 N/Kw.

The workmanship should be of high quality. It should not have sharp projections. All the moving parts should be properly protected. The machine should be painted with high quality paint after applying proper primer. The machine should be warranted for two years for any manufacturing defects.
Spatial Zero till Drill

Spatial zero till drill is similar to zero till drill but is spatially modified. It consists of frame, seed box, fertilizer box, seed metering mechanism, fertilizer metering mechanism, seed tubes, furrow openers, seed adjusting lever and transport cum power transmitting wheel. The frame is made from mild steel box section. The Detailed technical specifications are as follows:

Source of Power: 35 H.P tractor or more

Ground wheel: should be provided

Furrow openers: inverted T-type

No of furrow opener: 9

Frame Members: 3

Lateral Clearance (cms): 60

Vertical Clearance (cms): 60

Separate Hoppers (trapezoidal shape) for Fertilizer and Seeds with mechanism for feed rate control. The hoppers should be sufficiently covered to prevent the entry of water.

Provision for closing seed and fertilizer discharge should be provided

Metering Mechanism: for seeds: Fluted roller

for fertilizer: Gravity feed or corrugated roller type

The seed and fertilizer rate shall be easily adjustable

Power to metering mechanism: Lugged ground wheel Through chain and sprockets

Fertilizer placement: before the seed in the same line preferably 25 mm to the side of seed

Seed & fertilizer tubes should be made of transparent plastic. The thickness of the plastic tubes shall be a minimum of 25 mm.

The drill shall be able to sow wheat and may be other crops such as barley, soyabean etc. and also shall be able to sow all types of granular fertilizers

Type of hitch: three point linkage CAT-II

Field Capacity: 1 acre/day

The workmanship should be of high quality. It should not have sharp projections. All the moving parts should be properly protected. The machine should be painted with high quality paint after applying proper primer. The machine should be warranted for two years for any manufacturing defects.
Direct Seeded Rice Drill Cum Planter

It consists of frame, seed box, fertilizer box, seed metering mechanism, fertilizer metering mechanism, seed tubes, furrow openers, seed adjusting lever and transport cum power transmitting wheel. The frame is made from mild steel box section. The Detailed technical specifications are as follows:

Source of Power: 35 H.P tractor or more
Ground wheel: should be provided
Furrow openers: inverted T-type
No of furrow opener: 9 to 13
Separate Hoppers (trapezoidal shape) for Fertilizer and Seeds with mechanism for feed rate control. The hoppers should be sufficiently covered to prevent the entry of water.
Height of seed box: 0.9 m
Provision for closing seed and fertilizer discharge should be provided
Metering Mechanism: for seeds: inclined plate planter/suitable for metering paddy seeds
for fertilizer: Gravity feed or corrugated roller type
The seed and fertilizer rate shall be easily adjustable
depth of sowing: 2-3 cms
Power to metering mechanism: Lugged ground wheel Through chain and sprockets
Fertilizer placement: before the seed in the same line to the side of seed
Seed & fertilizer tubes should be made of transparent plastic. The thickness of the plastic tubes shall be a minimum of 25mm.
The drill shall be able to sow paddy and also shall be able to sow all types of granular fertilizers
Type of hitch: three point linkage CAT-II
Field Capacity: 1 acre/day

The workmanship should be of high quality. It should not have sharp projections. All the moving parts should be properly protected. The machine should be painted with high quality paint after applying proper primer. The machine should be warranted for two years for any manufacturing defects.
**Pneumatic Planter**

A Pneumatic precision Planter uses air/vacuum to transport the seed to furrow opener with precision at uniform depth. The detailed technical specifications are as follows:

- **Power Source:** 55-60 H.P tractor or more
- **Mounting mechanism:** through 3 point linkage with tractor
- **Power drive from tractor to machine:** tractor PTO at 540 rpm
- **Maximum No. of rows:** 4
- **Row to row distance:** 30-75 cms, adjustable

Ground wheel: should be provided

Furrow openers: Double disc with provision for adjustment of depth

Separate Hoppers for Fertilizer and Seeds with mechanism for feed rate control. The hoppers should be sufficiently covered to prevent the entry of water.

 Provision for closing seed and fertilizer discharge should be provided

Metering Mechanism: A vacuum seed metering mechanism arranged in combination with a seed hopper for uniformly dispensing seeds to the ground

The seed and fertilizer rate shall be easily adjustable

Power to metering mechanism: through PTO

Press wheels should be provided for covering the seeds

Fertilizer placement: before the seed in the same line

Seed & fertilizer tubes should be made of transparent plastic. The thickness of the plastic tubes shall be a minimum of 25mm.

The drill shall be able to meter cotton, Maize, Sorghum, groundnuts, peas, sunflower, soyabean etc. and also shall be able to meter all types of granular fertilizers

Type of hitch: three point linkage CAT-II

The workmanship should be of high quality. It should not have sharp projections. All the moving parts should be properly protected. The machine should be painted with high quality paint after applying proper primer. The machine should be warranted for two years for any manufacturing defects.
Happy Seeder

Happy seeder should be capable of sowing wheat crop in standing stubbles of paddy crop placing seeds and fertilizer at the desired depth of 2-2.5 cms. It should have separate arrangement for metering of seeds and fertilizer placed in seed and fertilizer boxes. The machine should work smoothly with 45 HP tractors with double clutch. The machine shall be operated with tractor PTO with 30cm clearance of furrow openers from the ground. The machine should be provided with adjustable depth wheels.

- Field Capacity 0.25-0.30 ha/hr
- Tractor Horse Power Requirement – 45 H.P (double clutch)
- Working width of machine 2.0 m
- No. of rows- 9
- Row to row distance: 225 mm
- Type of furrow openers: inverted type
- Rotor drum diameter 750 mm
- Rotor diameter 140 mm
- Window area: 0.200 X 0.450 = 0.09 m²
- Rotor RPM: 1360 rpm at 540 rpm of tractor PTO
- Types of flail blades Reversible straight gamma type
- Flails length from rotor surface 240 mm
- Blade length: 165mm
- Bottom width of blade: 85 mm
- Top width of blade: 50mm
- Blade Overlap with furrow openers 60 mm
- Horizontal clearance between the edges of blades: 75mm
- Minimum diameter of ground wheel: 550mm
- Capacity, ha/ hr: 0.25-0.30 ha/hr
- Weight: 450 kg to 550 kg

The workmanship should be of high quality. It should not have sharp projections. All the moving parts should be properly protected. The machine should be painted with high quality paint after applying proper primer. The machine should be warranted for two years for any manufacturing defects.
Raised Bed Planter

The bed planter consists of a frame, planting hoppers, fertilizer box, furrow openers, bed shaper, and power transmitting wheel. The frame is made of mild steel sections. The furrow openers are ridger type and have mouldboard and share point. The wingspan of the mouldboard can be adjusted. The share is made of medium carbon steel or alloy steel, hardened and tempered to suitable hardness. Bed planter makes bed and sows crops simultaneously and suitable for wheat, maize, peas etc. Vegetables seeds can also be sown by the planter.

Source of Power: 35 H.P tractor or more
Type of hitch: three point linkage CAT-II
Bed Former: MB plough type should be provided as per the no. of beds
Bed Shaper: Scraper type should be provided
Furrow Openers: Should have shovel type or double discs type furrow openers
Arrangement of furrow openers: should be arranged in two rows (front and rear)
Changing row spacing: suitable mechanism should be provided for changing width and Depth Control Mechanism should be provided (grooves for moving the openers up and down) for adjusting the depth of furrow openers
Location of fertilizer metering: before seed in line
Seed Metering Mechanism: Inclined plate/ vertical plate
For fertilizer: Fluted roller type fertilizer metering mechanism should be provided.
Source of Power: Through chain drive from Ground wheel
25mm dia transparent PVC tubes should be provided for conveying seed from metering device to furrow openers.
Separate Hoppers for Fertilizer and Seeds with mechanism for feed rate control. The hoppers should be sufficiently covered to prevent the entry of water.

The workmanship should be of high quality. It should not have sharp projections. All the moving parts should be properly protected. The machine should be painted with high quality paint after applying proper primer. The machine should be warranted for two years for any manufacturing defects. The machine should be easily serviceable with good availability of spare parts.
**Multi Crop Planter**

Used for bold grains like maize, groundnut, peas, cotton sunflower tec. it consists of a planting mechanism mounted on a seed cum fertilizer drill

Source of power: the machine should operate with tractor of 35 HP or above

Number of rows: may vary from 9 to 13

Row to row spacing: adjustable and also the no of rows should be adjustable

Type of furrow openers: reversible shovel type

Type of seed metering mechanism: vertical disc with spoon for different crops / Rotating Disc with cells on its periphery

Fertilizer: Agitator & Sliding Orifice type

Ground wheel should be provided.

The planting mechanism in all the hoppers should get the drive through a common shaft driven by the ground wheel through chain and sprocket.

The seed and fertilizer rate shall be easily adjustable

Power to metering mechanism: Lugged ground wheel Through chain and sprockets

Fertilizer placement: before the seed in the same line

Seed & fertilizer tubes should be made of transparent plastic. The thickness of the plastic tubes shall be a minimum of 25mm.

Type of hitch: three point linkage CAT-II

The workmanship should be of high quality. It should not have sharp projections. All the moving parts should be properly protected. The machine should be painted with high quality paint after applying proper primer. The machine should be warranted for two years for any manufacturing defects. The machine should be easily serviceable with good availability of spare parts.
Ridge Planter

Types of Crops Suitable for pulses and oil seeds

Power Source: 35 HP Tractor

No. of Ridgers: 3 or more

Ridger body should be detachable

No. of Furrow openers: 6 to 8

Furrow openers Shoe/hoe type with heavy duty standard.

Row spacing: 150 mm to 450 mm

Frame Type: M.S. angle 50 X 50 X 6 mm/Channel type 75mm x 45mm with adjustable holes.

Metering mechanism: Seed: inclined disc type (planter) / fluted roller (seed drill)/ Rotating Disc with cells on its periphery Fertilizer: Fluted roller/ variable aperture with agitator

Source of power: Ground wheel/Drive wheel with lugs in getting proper traction;

Additional set of disc plates for different crops should be provided

Delivery Tubes Plastic should be min of 25 mm dia

Hopper seed / fertilizer: To accommodate 50 kg seed and 60 kg fertilizer capacity made with G.I/M.S sheet of 18-22 gauge, lid to cover the hopper/hoppers

Furrow covering device and marker should be provided

Hitching section: 3 point linkage Frame should be suitable for all types of tractors (CAT-II)

The workmanship should be of high quality. It should not have sharp projections. All the moving parts should be properly protected. The machine should be painted with high quality paint after applying proper primer. The machine should be warranted for two years for any manufacturing defects. The machine should be easily serviceable with good availability of spare parts.
Semi Automatic Potato Planter

In the semi automatic planter potato seed is stored in a hopper with sloping bottom. Adjustable openings are provided in the sides near the bottom of the hopper to regulate the flow of tubers. The conveying of one potato per cup is regularized by the person sitting on the seat.

Prime Mover: Tractor of 35 H.P and above

Ridgers: should be provided for formation of ridges

No. of ridgers: 2 to 5

Changing Ridge Spacing: Provision should be there for change in ridge spacing (holes on the tool bar frame)

Soil covering device: should be provided

Adjustment of height of soil covering: device should be provided for adjustment of height of soil covering (by varying the depth of the ridgers through three point linkage)

Wing Width: provision should be there for change in wing width for changing width/profile of the ridge formed

Depth Control: mechanism should be there (slots in each shovel)

Seed Metering Mechanism: horizontally revolving ring or belt with cup type drive to seed metering mechanism: from ground wheel through chain and sprocket

Internal diameter of seed tube: 105mm

Furrow Openers: Shovels in front of seed tube

Ground wheel: should be provided with provision for adjusting the depth/length of lugs i.e. variable diameter ground wheel

Frame: should be of good quality frame with M.S box fabrication

Operator's seat: trapezoidal (curved at rear) M.S sheet supported by M.S flat through outer periphery and rested on angle iron support of min 355 X 360 mm welded to tool bar frame with provision of foot support.

Hopper: adequate capacity depending upon the no. of ridgers. shall be sufficiently strong and should not buckle when fully filled with potato tubers.

Type of hitch: Three point linkage (CAT-II)
The workmanship should be of high quality. It should not have sharp projections. All the moving parts should be properly protected. The machine should be painted with high quality paint after applying proper primer. The machine should be warranted for two years for any manufacturing defects. The machine should be easily serviceable with good availability of spare parts.
Automatic Potato Planter

Prime Mover: Tractor of 35 H.P and above

Ridgers: should be provided for formation of ridges

   No. of ridgers: 2 to 5
   Changing ridge spacing: Provision should be there for change in ridge spacing (holes on the tool bar frame)
   Soil covering device: should be provided
   Adjustment of height of soil covering: device should be provided for adjustment of height of soil covering (by varying the depth of the ridgers through three point linkage)

   Wing width: provision should be there for change in wing width for changing the width and profile of the ridge formed

   Depth Control: mechanism should be there (slots in each shovel)

Fertilizer Attachment: Optional

Seed Metering Mechanism: Actuating fingers seed metering mechanism should be provided
   Drive to seed metering mechanism: from ground wheel through chain and sprocket
   Furrow Openers: Shovels in front of seed tube

Ground wheel: should be provided with provision for adjusting the depth/length of lugs i.e. variable diameter ground wheel

Frame: should be of good quality M.S box fabrication

Hopper: adequate capacity depending upon the no. of ridgers. shall be sufficiently strong and should not buckle when fully filled with potato tubers.

Type of hitch: Three point linkage (CAT-II)

The workmanship should be of high quality. It should not have sharp projections. All the moving parts should be properly protected. The machine should be painted with high quality paint after applying proper primer. The machine should be warranted for two years for any manufacturing defects. The machine should be easily serviceable with good availability of spare parts.
Knap-Sack Sprayer

- Hand operated continuous knap-Sack Sprayer Piston type single barrel suitable for right hand operation, duly ISI marked as per IS 3906-1995 (fourth revision) with latest amendments
- Material: Sprayer tank made of virgin high density polyethylene plastic (HDPE), white colour weighing 1150 grams
- Pressure Chamber: Made of Brass 200gms (seamless brass shell)
- Pipe, brass sleeve pipe (forged) head, brass piston nut, stainless teel ball, total weight not less than 390-400 grams should be fitted inside the tank.
- Tank: 16 litres Capacity
- Weight: 4.5 - 5.0 kg (excluding packing if any)
- Delivery Hose: the sprayer must be supplied with 120 cms long virgin PVC hose crimped from both ends with wing nut and hose shank, 2 feet long brass spray lance weighing 120 grams, with brass trigger type cut off device
- Extension Rod: 60 cm long one and bent as goose neck
- Nozzle: brass triple action adjustable nozzle weighing 72-75 grams and a brass flat fan nozzle.
- The M.S skirting of the sprayer should not weight more than 800 grams
- Length, height, width, shape and filling hole diameter according to ISI Specifications
- All parts coming in contact with pesticides are made of special non-corrosive/incorrodable metals. All hardware used on the sprayer must have rust proof electroplating zinc or power coating.
- All other provisions on the sprayer must be according to as per IS 3906-1995 (fourth revision) with latest amendments
- The manufacturers brand name and ISI monograms must be permanently embossed by moulding (non-erasable) on HDPE tank. A necessary spare part kit including gaskets of all sizes, pins and nuts etc. should be supplied with the sprayer. The sprayer should be guaranteed for manufacturing and operational defects for one year.
Battery Operated Knapsack Sprayer

The tank should be made of HDPE, 16 litres capacity, mounted on plastic base fitted with self priming DC pump of minimum 2 litres per minute flow rate and fitted with 12 volt, 7 AH excide Chloride Safe Power dry battery or equivalent battery with 6 month warranty.

The sprayer must have 110 cm long PVC delivery hose, spray lance fitted with adjustable nozzle and a suitable charger.
**Power Operated Spray Pump**

It consists of a frame on which a high density polyethylene tank, fuel tank, engine, delivery pipe, shock proof cushion, and a spray hose. The pump adopts horizontal gear driving. It is powerful and stable in pressure.

**Power Source:** min. of 1 H.P, 2 stroke, forced air cool engine

**Starting system:** Recoil starter

**Fuel tank:** light weight, high density polyethylene tank

**Shock proof cushion** should be provided for ease of operation

**Fuel Tank Capacity:** 500 ml

**Chemical tank capacity:** 20 ltr ± 5 %

**Pump type:** Positive displacement reciprocating pump (single piston double acting)

**Suction / Discharge capacity at no load:** 10 to 11 ltr/min

**Normal working pressure:** 100 – 200 PSI

**Maximum pressure:** 400 PSI

**Weight:** max. of 12 kgs

The structure should be rigid and easy to be maintain. It can also be used for dusting and ULV application.
Tractor Operated Hydraulic Sprayer-I

Tractor mounted (540 RPM) PTO operated sprayer should be compatible with any tractor of 25 HP and above. It should have CAD design structure made from M.S Member detachable painted with one coat of red-oxide primer followed by two coats of good quality enamel by spray painting.

Sprayer must be equipped with oil bath type triple X stainless steel piston plunger pump with min. 35-50 lpm discharge at rated speed of 540 RPM. Adjustable telescopic shaft compatible with PTO of any tractor should be provided. Rotationally moulded horizontal U shaped tank made of UV resistant agro chemical material for corrosion resistance having capacity of 400 liters with bottom bowl must be provided. the chemical tank must weight minimum 28 kgs. The sprayer must be provided with 5X mixing and diffusion technology to keep the chemical in suspension form for uniform application. sprayer must have auto refilling system to fill the tank.

Sprayer must be provided pressure hose reel mounted on bearing, swivel joint inbuilt in the reel hub should be provided to prevent the hose from twisting and prevent leakage 100 meters long, 10mm layered fiber net pressure hose pipe with working pressure of 60 bars and bursting pressure of 180 bars (min.) may be provided.

Sprayer must be equipped with drip free shut off spray gun with flow rate of 1 to 53 liters at working pressure of 1 to 50 bars. The spray gun with corrosion resistant D-orifice discs should have horizontal throw of 50 feet and vertical throw of 42 feet.

The sprayer should not weigh more than 200kgs, with overall dimensions not exceeding 56" X 48" X 56". The sprayer must have a warranty of two years for manufacturing and working defects.
Tractor Operated Hydraulic Sprayer-II

Tractor mounted (540 RPM) PTO operated sprayer should be compatible with any tractor of 35 HP and above. It should have CAD design structure made from M.S Member detachable painted with one coat of red-oxide primer followed by two coats of good quality enamel by spray painting.

Sprayer must be equipped with oil bath type triple X stainless steel piston plunger pump with min. 65 lpm discharge at rated speed of 540 RPM. Adjustable telescopic shaft compatible with PTO of any tractor should be provided. Rotationally moulded horizontal V shaped tank made of UV resistant agro chemical material for corrosion resistance having capacity of 600 liters with bottom bowl must be provided. the chemical tank must weight minimum 30 kgs. the sprayer must be provided with 5X mixing and diffusion technology to keep the chemical in suspension form for uniform application. sprayer must have auto refilling system to fill the tank.

Sprayer must be equipped with auto re-winding pressure hose reel mounted on bearing with the provision for left to right and right to left rewinding of pressure hose, swivel joint inbuilt in the reel hub should be provided to prevent the hose from twisting and prevent leakage 200 meters long, 10mm layered fiber net pressure hose pipe with working pressure of 60 bars and bursting pressure of 180 bars (minimum) may be provided.

Sprayer must be equipped with drip free shut off spray gun with flow rate of 1 to 53 liters at working pressure of 1 to 50 bars. The spray gun with corrosion resistant D-orifice discs should have horizontal throw of 50 feet and vertical throw of 42 feet.

The sprayer should not weigh more than 200kgs, with overall dimensions not exceeding 56" X 48" X 56". The sprayer must have a warranty of two years for manufacturing and working defects.
Aero Blast Sprayer

Useful for spraying on horticulture trees and tall crops like cotton, sunflower etc. the air blast distributes the chemical in the form of very fine particles throughout its swath width, which is on one side of the tractor. The major portion of the swath width is taken care of by the main blast through the main spout and the supplement nozzles cover the swath area near the tractor.

Tractor driven P.T.O operated Aero blast sprayer suitable for spraying on agriculture crops, orchards and agro forestry trees should have over all dimensions of 1.8 m X 1.7m X 2.35 m and should weight approximately 165 kgs.

Mounting mechanism: through 3 point linkage with tractor
Power: the machine should operate with tractor of 35 HP or above
Power drive from tractor to machine: tractor PTO at 540 rpm
Tank: polyethylene tank of 400 liters capacity
Pump: Single rotor centrifugal pump with 120 liters/min discharge at 2800 rpm
Blower/Fan: 1.78 m$^3$/ sec air discharge at air speed of 232 Km/h at 3550 rpm with 13.0 H.P maximum power consumption
Spray swath : without wind 19.0 m and with wind speeds of 5 km/hr and 10 km/ hr should be 25.0 m and 30.0 m
Spout adjustment: Suitable arrangement should be provided on the sprayer to change the angle of the spout.
Filling unit: filling unit should be provided on the machine for easy filling of water in the tank
Spraying nozzles: good quality spraying nozzles should be provided
Orchard - Aero Blast Sprayer

Useful for spraying on orchard crops the air blast distributes the chemical in the form of very fine particles throughout its swath width, which is on both sides of the tractor.

Tractor driven P.T.O operated Aero blast sprayer suitable for spraying on agriculture crops, orchards and agro forestry trees should have over all dimensions of 1.8 m X 1.7m X 2.35 m and should weight approximately 165 kgs. It should have polyethylene tank of 400 liters capacity. Single rotor centrifugal pump with 120 liters/min discharge at 2800 rpm should be provided on the sprayer.

Mounting mechanism: tractor trailed
Power: the machine should operate with tractor of 35 HP or above
Power drive from tractor to machine: tractor PTO at 540 rpm
Tank: horizontal tank of 2000 liters capacity
Pump: ceramic 3 piston
Gear Box: twin speed input 540 rpm
Control Unit: 3 way up to 600 bar
Filling unit: filling unit should be provided on the machine for easy filling of water in the tank
Spraying nozzles: twin ceramic hollow cone with anti drip diaphragm
Tyres: two good quality tyres should be provided for trailing the equipment
**Power Weeder**

Power weeder is a self propelled walk behind machine. Machine consists of engine gear box, rotary unit, lugged pneumatic wheel. the power from gear box is transmitted directly to rotary unit for weeding and lugged pneumatic wheels for providing traction to machine for forward motion. the detailed specifications are as below:

**Prime Mover:**
- min. of 2.5 H.P engine (petrol or diesel) conforming the BIS standards in respect to performance on different parameters.

**Traction Wheel:**
- Two Wheels provided with traction type lug pattern in case H.P of machine is more than 5 H.P. for smaller machines rubber wheels should be provided

**Clutch:**
- should be provided on the handle bar

**Gear Box:**
- Mechanical, with provision for forward and reverse speeds, operated by a lever on the handle

**Steering system:**
- should be easy to operate for the farmers

**Rotary:**
- no of flanges - 1-4
  - shape of flanges: square section
  - depth control lever: should be provided

**Blade:**
- 'C' type, no. of blades may vary as per no. of flanges (Min. of 3 blades in each rotor)

**Operator's safety:**
- Maneuverability of the machine should be easy. Noise level should be well within the prescribed limits

**Provisional options:**
- Detachable Operator's seat: should be well cushioned for comfort

The overall weight of the machine with full fuel tank, sump & gear box but without operator should not be more than 170 kgs.

The workmanship should be of high quality. It should not have sharp projections. All the moving parts should be properly protected. The machine should be painted with high quality paint after applying proper primer. The machine should be warranted for two years for any manufacturing defects. The machine should be easily serviceable with good availability of spare parts.
Potato Digger

Machine is suitable for harvesting and exposing the potato tubers. It comprises of a frame, shovel type digging blade, endless rod chain conveyer, gearbox, two gauge wheels, idlers and driving sprockets. The machine harvests one row at a time. Soil-potato mass is picked up and lifted by the chain conveyer. Two agitator sprockets oscillate the conveyer chain rod, which helps to separate the soil. Potato tubers with no or very little osil/clods are dropped on the ground behind the digger.

Power Source: tractor of 35 HP and Above
Hitch: rear 3 point linkage, CAT-II
Frame: Should be good quality (MS Channel/Box welded frame)
Digging blade: one shovel type 55cm width
Gauge wheels: two in number should be provided
the machine should have idlers and driving sprockets
Blades: V type edge
Depth Adjustment: through 2 disc at both end of blades
Conveyer: endless rod chain conveyer made of MS rods of 13mm, length of conveyer 150cms, 20 degree angle with the horizontal
Gear box- should be provided, which is compatible with the PTO power transmission mechanism

The workmanship should be of high quality. It should not have sharp projections. All the moving parts should be properly protected. The machine should be painted with high quality paint after applying proper primer. The machine should be warranted for two years for any manufacturing defects.
Self Propelled Reaper Binder

The machine is a self propelled unit which is capable of reaping and binding the crop in one go.

Prime Mover: min. of 5 H.P engine (petrol or diesel) conforming the BIS standards in respect to performance on different parameters.

Traction Wheel: two Wheels provided at front with traction type lug pattern, track width a min of 1200mm

Steering Wheel: Single wheel, pneumatic ribbed nylon

Wheel Base: 1600 mm min.

Clutch: should be provided on the handle bar

Gear Box: Mechanical, with provision for forward and reverse speeds, operated by a level on the handle

Brake: should be provided on the handle bar. along with provision for parking brakes.

Steering system: should be easy to operate for the farmers

Head light should be provided on the machine

Reaper:
- Effective Cutter Bar Width: 1300 mm
- Blades: Serrated, 17 in no.
- Knife guards should be provided.
- the cutter bar should to pitman shaft and oscillated by crank arm.
- Crop Divider: Should be provided (Shoe Type)
- Mechanism for crop Conveyance should be provided (Gathering forks)

Binder Unit: should be able to make bundles of the crop effectively without any loss/physical damage to the crop. Once the bundle is tied with a rope the bundle of crop should be released. The twine bundle should be easily replaced.

The machine should be able to work well both for wheat and paddy crop.

Operator's seat: should be well cushioned for comfort.

Operator's safety: Maneuverability of the machine should be easy. Noise level should be well within the prescribed limits
The overall weight of the machine with full fuel tank, sump & gear box but without operator should not be more than 450 kgs.

The workmanship should be of high quality. It should not have sharp projections. All the moving parts should be properly protected. The machine should be painted with high quality paint after applying proper primer. The machine should be warranted for two years for any manufacturing defects. The machine should be easily serviceable with good availability of spare parts.
**Self Propelled Fodder harvester**

Prime Mover: min. of 5 H.P engine (petrol or diesel) conforming the BIS standards in respect to performance on different parameters.

Traction Wheel: two Wheels provided at front with traction type lug pattern, track width a min of 1200mm

Steering Wheel: Single wheel, pneumatic ribbed nylon

Wheel Base: 1400 mm min.

Clutch: should be provided on the handle bar

Gear Box: Mechanical, with provision for forward and reverse speeds, operated by a level on the handle

Brake: should be provided on the handle bar. along with provision for parking brakes.

Steering system: should be easy to operate for the farmers

Head light should be provided on the machine

Reaper:

- Effective Cutter Bar Width: 1200 mm
- Blades: Serrated, 17 in no.
- Knife guards should be provided.
- the cutter bar should to pitman shaft and oscillated by crank arm.

Crop Divider: Should be provided (Shoe Type)
Mechanism for crop Conveyance should be provided (Gathering forks)
arrangement for adjusting cutting height and range should be provided.

Operator's seat: should be well cushioned for comfort.

Operator's safety: Maneuverability of the machine should be easy. Noise level should be well within the prescribed limits

The overall weight of the machine with full fuel tank, sump & gear box but without operator should not be more than 300 kgs.

The workmanship should be of high quality. It should not have sharp projections. All the moving parts should be properly protected. The machine should be painted with high quality paint after applying proper primer. The machine should be warranted for two years for any manufacturing defects. The machine should be easily serviceable with good availability of spare parts.
Tractor operated Fodder Harvester cum Mobile Shredder
For Cutting & Chopping Green Maize Crop for Fodder and also for shredding crop stalks like cotton, castor etc.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Cutting Rows</td>
<td>1</td>
</tr>
<tr>
<td>No. of Cutting Disc</td>
<td>2</td>
</tr>
<tr>
<td>Minimum Tractor HP</td>
<td>50</td>
</tr>
<tr>
<td>No. of Shredding Knife</td>
<td>12</td>
</tr>
<tr>
<td>Input RPM</td>
<td>540 and 1000</td>
</tr>
<tr>
<td>Fly Wheel RPM @ 540 PTO</td>
<td>1500 to 1700</td>
</tr>
<tr>
<td>Tractor Mounting</td>
<td>Rear Three Point Linkage</td>
</tr>
<tr>
<td>Chute Type</td>
<td>Long Chute with Hydraulic operated provision for changing direction of throw</td>
</tr>
<tr>
<td>Crop Guide</td>
<td>2 nos. (one on each side of row)</td>
</tr>
<tr>
<td>Knife Sharpening Tool</td>
<td>In built, adjustable, grinding wheel</td>
</tr>
<tr>
<td>Depth Wheel</td>
<td>1 no. with height adjustment</td>
</tr>
<tr>
<td>Blade Material</td>
<td>Boron steel</td>
</tr>
<tr>
<td>Power Drive to Fly wheel</td>
<td>Positive drive through Telescopic Cardan Shaft with universal joint and shear bolt safety device</td>
</tr>
<tr>
<td>Drive Shaft</td>
<td>Telescopic Cardan shaft with universal joints and shear bolt safety device</td>
</tr>
</tbody>
</table>

The workmanship should be of high quality. It should not have sharp projections. All the moving parts should be properly protected. The machine should be painted with high quality paint after applying proper primer. The machine should be warranted for two years for any manufacturing defects.
Maize Harvester Combine

Prime Mover: Engine conforming to BIS standards

Combine:
- Track Wheel: two good quality pneumatic wheels at front of combine
- Track width: 2300 mm
- Steering wheel: two good quality pneumatic wheels (track width 1940 mm)
- Wheel Base: 3500mm

Transmission System:
- Clutch: with min. of one friction disc should be provided
- Gear Box: for forward and reverse speed
- Differential: should be provided

Brake System: Service Brakes and parking brakes should be provided on the combine

Steering system: Manual steering control wheel along with the whole system should be provided

Reel Assembly: tyne bar pick up reel with arrangement for speed variation, forward and backward movement, variation of angle of the tyne should be provided

Cutter bar Assembly:
- Crop Divider: Shoes
- no. of knife guards & Shoe: 6
- no. & type of knife blades: plain 10 no. rectangular type
- knife drive: end of cutter bar shaft connected with chain & sprocket of beater shaft, oscillated by gears set

Crop Converyor: Screw auger with arrangement for locking the header in raised position should also be provided.

Threshing Drum: Axial flow with rasp bar and peg tooth

Arrangement of bars/pegs: fitted on axial thresher

Concave/ Housing of threshing drum: 2 no. perforated type underneath of threshing drum, 2 nos. square rod, on open flat bars on top
of the drum, with provision for adjustment of
clearance between the drum and concave

A rectangular type rear beater should be provided
A sheet metal, rectangular and semi circular baffle plate should be provided behind the axial
thresher and above the beater.
A Plain M.S Sheet stepped grain pan should be provided
2 Nos. Cleaning sieves (top and bottom) should be provided with drive.
Blower, with provision for control of air blast should be provided.

Grain Conveying Mechanism:
- Screw type bottom grain conveyer should be provided
- Chain and pad type grain elevator should be provided
- Screw type top grain auger should be provided
- Screw type bottom tailing auger should be provided
- Chain and pad type tailing elevator should be provided
- Screw type upper tailing auger should be provided

Grain Tank: a grain tank of min. vol. 2.00 m³ with a provision for agitating the grains and
tank cover should be provided.
A screw type grain unloading auger should be provided

The canopy of the harvester combine should be M.S sheet. Single axle box type
header transport trailer made of M.S square section should be provided. the transport trailer
should have two good quality pneumatic wheels for transportation.

In general the cutter bar assembly and platform auger should be visible from the
operator’s normal sitting position. the controls should be provided around the operator and
should be easy to reach for the operator. stone trapper should be provided at the front of the
concave.
Maize Sheller

Used for shelling maize cobs. the machine consists of a threshing cylinder, concave and centrifugal blower mounted on a frame. Crop feeding is manual. The concave clearance head comes out through the opening at the far end of threshing drum. the clearing is done by blowing away the chaff with the help of blower.

Source of Power: 5 H.P Electric Motor/ 5.5 H.P Diesel Engine/ Tractor
Feeding chute (manual): confirming to ISI standards to avoid any accident
size of Feeding hopper: 575 X 510
Threshing cylinder: spike tooth type
Cleaning system: blower
Concave: should be provided
Hitch System: should be provided for transportation
Transport Wheels: good quality Pneumatic wheels should be provided

The workmanship should be of high quality. It should not have sharp projections. All the moving parts should be properly protected. The machine should be painted with high quality paint after applying proper primer. The machine should be warranted for two years for any manufacturing defects. The machine should be easily serviceable with good availability of spare parts.
Maize Thresher

The thresher consists of threshing cylinder, oscillating sieves, concave and cleaning attachment. Various pulleys of different sizes are fitted on this shaft to transmit power to winnowing and fan attachment. The detailed technical specifications are as follows:

Prime Mover: Tractor 35 H.P
Hopper: automatic feeding with feeding chute confirming to BIS standards
Threshing Cylinder: Rotor having thread studs based on Axial Flow system
Cylinder Speed: variable (set of pulleys and belts should be provided to achieve this 8-14.6 m/sec)
Cleaning system: Oscillating system controlled by bearings
No. of Fans: 3 on main shaft, 1 in sieve cradle
Hitch System: should be provided for transportation
Transport Wheels: good quality Pneumatic wheels should be provided

The workmanship should be of high quality. It should not have sharp projections. All the moving parts should be properly protected. The machine should be painted with high quality paint after applying proper primer. The machine should be warranted for two years for any manufacturing defects. The machine should be easily serviceable with good availability of spare parts.
Multi Crop Thresher

The thresher consists of threshing cylinder, oscillating sieves, concave and winnowing and cleaning attachment. Various pulleys of different sizes are fitted on this shaft to transmit power to winnowing and fan attachment. Adjustments for cylinder and blower speeds and concave clearance are provided to make the machines suitable for threshing various crops. The detailed technical specifications are as follows:

Prime Mover: Tractor 35 H.P or 20 HP three phase motor
Crops: should be suitable for variety of crops: Wheat, maize, pigeon pea, gram, lentil
Hopper: automatic feeding with feeding chute confirming to BIs standards
Threshing Cylinder: spike tooth type
Cylinder Speed: variable (set of pulleys and belts should be provided to achieve this 8-14.6 m/sec)
Cleaning system: three aspiration blower
Concave:
Broken grain: should not be more than 3.1%
Total Grain loss: should not be more than 3.64%
Cleaning efficiency: 93.4-99.9%
Threshing Efficiency: 99.3-100%
capacity: 533-2980 kg/hr.
Hitch System: should be provided for transportation
Transport Wheels: good quality Pneumatic wheels should be provided
Overall dimensions (mm.): Length 3420, width 4300, height 2330

The workmanship should be of high quality. It should not have sharp projections. All the moving parts should be properly protected. The machine should be painted with high quality paint after applying proper primer. The machine should be warranted for two years for any manufacturing defects. The machine should be easily serviceable with good availability of spare parts.
**Rotary Mulcher (Chopper)**

Tractor Operated rotary mulcher should be suitable for operation with 540 pm tractor power take off shaft of tractor. It should be suitable for hitching with three point linkage of category II. Mulcher should be capable of mulching paddy stubbles and loose straw lying in the combine harvested paddy field and should cut the stubbles/straw into fine pieces and leave them in the field in form of mulch which can be subsequently mixed into the soil or decomposed by irrigating the field. The detailed technical specification are given below:

Working width: 155 to 200 cms (as per suitability with tractor 40-70 H.P)

Overall width: 165 to 220 cms

No. of blades: min. of 32 Y and 16 straight

Blade Type: set of 2 Y type and 1 straight center blade

Blade material: should be of high quality to withstand the shear preferably boron steel

Input RPM: 540

Rotor RPM: 1800 to 2000

Rotor drive type: v belt drive, a min. of 2 belts should be provided

Rotor diameter: 45 to 50 cms

Drive Shaft: Telescopic Cardan shaft with universal joints and shear bolt safety device

Metal flap should be provided for front protection

The machine should have a support roller rear mounted with provision for height adjustment mounting on tractor: rear 3 point linkage, CAT-II

The workmanship should be of high quality. It should not have sharp projections. All the moving parts should be properly protected. The machine should be painted with high quality paint after applying proper primer. The machine should be warranted for two years for any manufacturing defects.
**Straw Reaper**

Straw Reaper is used to recover wheat straw after combine operation. It is trailed behind a tractor and is PTO operated. It has a cutter bar reel, feeding augur and bruising cylinder like a traditional thresher. Straw thrown and stubble left by the grain combine is collected by straw reaper and delivered to the cylinder -concave section, where it is cut into pieces and passes through concave. Straw, which passes through the concave, is aspirated by a blower and fed into a trolley on the rear side covered by a wire net. For recovering the left grains from the straw, a sieve system is provided below the concave.

**Power Source:** tractor of 35 HP and Above (PTO operated)

**Drive Shaft:** Universal Telescopic shaft

**Auxiliary Drive shaft:** should be provided with universal joint at one end

**Gear Box:** Bevel gears, PTO drive with help of universal coupling

**Reel:**
- should be tine bar pick up reel with fixed speed and drive to reel
- should be provided by belt drive. There should be arrangement for lowering and raising of reel and for forward and backward movement of reel

**Cutter bar width:** min. of 180 cm

**Blade:** serrated, min 24 pc should be provided

**Cutting height:** 50mm

**Feeding Auger:** Screw/ helical & scoop Auger with provision of slots for adjusting the clearance of feeding auger

**Beater:** Pentagonal, star Type or square type with drive from v-belt & pulley should be provided

**Threshing cylinder type:** Cutter blade/ reversible serrated blades mounted on a cylinder

**Diameter of drum:** min. 490 mm

**speed of drum:** 840 rpm

**no. of blades:** min 240 pc

**Concave:** should be directly fitted to the mainframe, with provision for adjusting the clearance between the drum and concave.

**Cleaning Sieve:** made of perforated M.S Sheet should be provided
<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grain pan/Grain Reservoir</td>
<td>Trapezoidal box shaped reservoir should be provided</td>
</tr>
<tr>
<td>Blower</td>
<td>Two blower per machine, with four blades per blower</td>
</tr>
<tr>
<td>Straw Outlet</td>
<td>Swirled Cylinder, M.S sheet fabricated in tubular form</td>
</tr>
<tr>
<td>Transport Wheels</td>
<td>Two ribbed tyres should be provided</td>
</tr>
<tr>
<td>Tyres</td>
<td>Should be good quality conforming to BIS standards</td>
</tr>
<tr>
<td>Dimensions</td>
<td>3400mm X 2015mm X 2410mm</td>
</tr>
</tbody>
</table>

The workmanship should be of high quality. It should not have sharp projections. All the moving parts should be properly protected. The machine should be painted with high quality paint after applying proper primer. The machine should be warranted for two years for any manufacturing defects.
Paddy Straw Chopper Shredder

Paddy Straw Chopper Shredder is used to recover straw after combine operation in paddy fields. It is trailed behind a tractor and is PTO operated. It has a cutter bar reel, feeding augur and bruising cylinder like a traditional thresher. It is quite similar to Straw Reaper.

- **Power Source:** tractor of 35 HP and Above (PTO operated)
- **Drive Shaft:** Universal Telescopic shaft
- **Auxiliary Drive shaft:** should be provided with universal joint at one end
- **Gear Box:** Bevel gears, PTO drive with help of universal coupling
- **Reel:** should be tine bar pick up reel
- **Cutter bar width:** min. of 180 cm
- **Knife Guards:** should be provided
- **Blade:** serrated
- **Cutting height:** 50mm
- **Feeding Auger:** Screw/ helical & scoop Auger
- **Threshing cylinder type:** Cutter blade/ reversible serrated baldes mounted on a cylinder
- **Diameter of drum:** 32"
- **No. of bars on thresher:** 14
- **Concave:** should be directly fitted to the mainframe, with provision for adjusting the clearance between the drum and concave.
- **Transport Wheels:** two ribbed tyres should be provided
- **Tyres:** should be good quality conforming to BIS standards
- **Dimensions:** 3400mm X 2015mm X 2410mm

The workmanship should be of high quality. It should not have sharp projections. All the moving parts should be properly protected. The machine should be painted with high quality paint after applying proper primer. The machine should be warranted for two years for any manufacturing defects.
Bailer

Bailer is a tractor driven machine used to compress a cut and raked crop (such as straw, or silage) into compact bales that are easy to handle, transport, and store. Several different types of balers are commonly used, each producing a different type of bales – rectangular or cylindrical, of various sizes, bound with twine, strapping, netting, or wire.

Power requirement: 45 or above H.P tractor

Knotters: minimum of 2 knotters should be provided, which are suitable for both plastic and sisal rope.

Bale Density: should be adjustable along with bale length should be adjustable.

The machine should have suitable pressing ram.

Shear bolt protection should be provided

Hitch system: Suitable for three point linkage, CAT-II. Trailer hitch should also be provided on the baler

Transportation Wheel: Two good quality transportation wheels should be provided

Pick up support wheel: good quality pick up support wheel should be provided

Pick Up: hydraulically actuated pick up should be provided

The workmanship should be of high quality. It should not have sharp projections. All the moving parts should be properly protected. The machine should be painted with high quality paint after applying proper primer. The machine should be warranted for two years for any manufacturing defects.
Disc Mower

Disc Mower is a tractor operated machine for harvesting and wind rowing of green fodder and crop residues like rice straw etc.

Power requirement: 35 or above H.P tractor

Machine should have a minimum of 4 oval discs for efficient harvesting and windrowing

Cutting Mechanism: Disc Type cutting mechanism, dynamically balanced gears and blades

Knives: Should be replaceable

Hitch System: Suitable for three point linkage, CAT-II.

The machine should have hydraulically actuated folding arrangements inclusive of QRC, Piping etc for reduced transport width.

The workmanship should be of high quality. It should not have sharp projections. All the moving parts should be properly protected. The machine should be painted with high quality paint after applying proper primer. The machine should be warranted for two years for any manufacturing defects.
**Gyro Rakes**

Power requirement: 35 or above H.P tractor

The machine should have single rotor type swathing mechanism with dynamically balanced rotor. The swath delivery should preferably be to the left.

The machine should have tandem wheel design for less vibrations

Hitch System: Suitable for three point linkage, CAT-II.

The workmanship should be of high quality. It should not have sharp projections. All the moving parts should be properly protected. The machine should be painted with high quality paint after applying proper primer. The machine should be warranted for two years for any manufacturing defects.
**Portable Maize Dryer**

Indirect heating/ portable batch type maize dryer should have dynamically balanced high capacity centrifugal / axial flow blower with air flow control as per requirement. It should preferably use maize cob husk, paddy husk or light diesel oil as fuel for generating hot air. Hot air temperature should be thermostatically controlled at desired set levels depending upon the moisture content of grains. Hot air generating burner should be automatically controlled with highly sensitive thermostat and solenoid valves. Dryer should be equipped with burner capable of generating clean combustion with no backfire hazards.

It should be capable of carrying out drying at 40-45 degree centigrade temperature and ambient conditions of 38 degree centigrade temperature and 60% R.H.

Capacity: 3 tonnes/ batch  
Drying Bin Size: 4000 X 3000X 1200 mm ( M Steel Sheet, Angles, Channels )  
Blower Output: 70000-100000 K.Cal/ Hr  
Blower Discharge: 14000 CMH at 35 mm WGP  
Blower Motor: 5.0 H.P, 440 V, 3-phase AC  
Fuel: Maize cob husk, Paddy Husk or LDO

Note: Manufacturers having different specifications but with similar capacities of dryers may also apply. The decision on their empanelment will be taken by the competent authority.
**Sugarcane Triphasli**

- **Power Source:** tractor of 25 HP and above
- **Hitch:** rear 3 point linkage, CAT-II
- **Frame:** Should be good quality (MS Box), should be 62mm X 62mm X 6mm
- **Tyne:** Should be made of MS forged (length: 24”, Thickness: 15-18mm, width: 2.5”)
- **No. of tynes:** 9
  - The tynes should be adjustable (22” to 26”) with 1 step adjustment each
- **Blade:** Reversible shovel type (length: 10”, breadth: 2”, thickness: 6mm)

The workmanship should be of high quality. It should not have sharp projections. The machine should be painted with high quality paint after applying proper primer. The machine should be warranted for two years for any manufacturing defects.
# SUGARCANE TRENCHER

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Source</td>
<td>35 or higher H.P tractor</td>
</tr>
<tr>
<td>Bottom width of trench, cm</td>
<td>30</td>
</tr>
<tr>
<td>Depth of trench, cm</td>
<td>20 - 25</td>
</tr>
<tr>
<td>Width of bed, cm</td>
<td>90</td>
</tr>
<tr>
<td>Size of frame, cm</td>
<td>MS, 194 x 50</td>
</tr>
<tr>
<td>Size of section, cm</td>
<td>75 x 75 x 5</td>
</tr>
<tr>
<td>Size of Tine, cm</td>
<td>Width: 5, Thickness: 2</td>
</tr>
<tr>
<td>Thickness of Mould board sheet, mm</td>
<td>MS, 6</td>
</tr>
<tr>
<td>Type of Mould board</td>
<td>Adjustable</td>
</tr>
<tr>
<td>No. and Length of marker, cm</td>
<td>2, 120</td>
</tr>
<tr>
<td>Spacing between the each pair of furrow openers, cm</td>
<td>30</td>
</tr>
<tr>
<td>Type of furrow openers</td>
<td>Reversible shovel type</td>
</tr>
<tr>
<td>Prevision for bed scrapper</td>
<td>Provided</td>
</tr>
<tr>
<td>Type of mounting of trench assembly</td>
<td>Clamp type</td>
</tr>
<tr>
<td>Hitch</td>
<td>rear 3 point linkage, CAT-II</td>
</tr>
</tbody>
</table>

The workmanship should be of high quality. It should not have sharp projections. The machine should be painted with high quality paint after applying proper primer. The machine should be warranted for two years for any manufacturing defects.