F.No. 13-1/2018-M&T (I&P)
Government of India
Ministry of Agriculture & Farmers Welfare
(Department of Agriculture, Cooperation & Farmers Welfare)

Dated: 15th June 2018

OPEN INVITATION OF PROPOSALS FOR EMPANELMENT OF MANUFACTURERS FOR SUPPLY OF MACHINERY AND EQUIPMENT FOR IN-SITU MANAGEMENT OF CROP RESIDUE IN THE STATES OF PUNJAB, HARYANA, UTTAR PRADESH AND NCT OF DELHI DURING THE FINANCIAL YEAR 2018-19.

1) The proposals from the reputed manufacturers are invited for their empanelment as suppliers of machinery and equipment for in-situ management of crop residue in the states of Punjab, Haryana, Uttar Pradesh and NCT of Delhi during the financial year 2018-19.

2) The manufacturers who have submitted their proposals with reference to the earlier online tender vide Tender ID 2018_DACO_321289_1 need not apply again for the same products for which they have been empanelled. However, they may submit the proposals of other equipment which comply with the requirements mentioned hereunder.

3) The manufacturer who wishes to submit their proposals for any of the below mentioned equipments or all the equipments, they should be the Original Equipment Manufacturer (OEM) of that equipment.

4) If the manufacturer is not OEM of particular equipment, but have MOU with the OEM for marketing of that equipment, then the manufacturer will be eligible for submitting their proposal on submitting the copy of MOU between the manufacturer and the OEM. In such cases, the OEM of that particular equipment shall not be eligible for submitting the proposals separately.

5) The address and contact numbers for sending proposals or seeking clarifications are given below –

a.	Proposals/queries to be addressed to:	Shri Arvind Meshram Deputy Commissioner (M&T), Ministry of Agriculture & Farmers Welfare (Department of Agriculture, Cooperation and Farmers Welfare), Room No. 573, Krishi Bhawan, New Delhi – 110001
b.	Telephone numbers of the contact personnel	(011) 23382922
e.	E-mail ids of contact personnel	arvind.meshram@nic.in
f.	Fax number	(011) 23382922

6) The proposals must indicate unconditional acceptance of all terms and conditions of supply of equipments, failing which it is liable to be rejected. Certificate with respect to unconditional acceptance must be put in technical proposal as per format attached as Appendix 'A'.

(a) **Critical Dates**: The proposals together with all relevant details should reach at the above mentioned address on or before 29.06.2018 at 3.00 PM. Proposals may be sent through **Speed Post** only (avoid courier services). In case of physical deposition, the envelop may be dropped in the sealed condition in the Tender Box marked as TENDER BOX, DC (M&T) placed at the reception Gate No. 1 of Krishi Bhawan, New Delhi. The envelope should be duly marked with Proposal ID as 13-1/2018-M&T (I&P) dated 15th June 2018.

7) **Forwarding of proposals** – Proposals should be forwarded by the manufacturers under their original memo / letter pad inter alia furnishing details like complete postal, e-mail address, Fax No & Telephone no of their office alongwith the name of the contact person.

8) **The machinery and equipments for which the proposals are invited:**

S No	Equipment Items required	Specification
1.	Super Straw Management System (Super SMS) to be attached with Combine Harvester	As per Annexure-1(a)
2.	Happy Seeder	As per Annexure-1(b)
3.	Paddy Straw Chopper/ Shreder/ Mulcher	As per Annexure-1(c)
4.	Shrub master / cutter cum spreader	As per Annexure-1(d)
5.	Reversible M.B. Plough	As per Annexure-1(e)
6.	Rotary Slasher	As per Annexure-1(f)
7.	Zero Till drill	As per Annexure-1(g)
8.	Rotavator	As per Annexure-1(h)

The specification of the machines and equipments should conform to the specification as indicated in the Annexure 1(a) to 1(h). The conformity of specification will be examined with reference to the test report of the particular equipment submitted with the proposals.

9) **Warranty**: The manufacturer shall provide the warranty on the machines and equipments for period of 15 months from the date of sell.

10) **Performance Guarantee**: For single equipment the performance guarantee would be Rs. 2.0 lakhs. For more than one and upto 2 equipments, the performance guarantee would be Rs. 5.00 lakhs and for more than 2 and all the 8 equipments, it would be Rs. 10.00 lakhs. This Performance Bank Guarantee will have to be deposited by the manufacturers, once the confirmation for empanelment is received.

11) **Price of the Equipment/Machines**: The manufacturers should quote the final selling price to the beneficiary inclusive of taxes (GST), duties and transportation. The price may be quoted state-wise. This price may be submitted equipment –wise a in a separate sealed envelope. In support of the claimed price, the manufacturer shall submit copies of bill of sale/sell letters for the latest last 10 machines sold.

The price that will be quoted by the manufacturers should not be more than the following benchmark cost fixed for subsidy

S.No.	Name of the machine/equipment	Maximum price for the purpose of subsidy including GST @ 12% (Rs.)
1.	Super Straw Management System (Super SMS) to be attached with Combine Harvester	1,12,000
2.	Happy Seeder	
	a) 09 tine	1,45,600
	b) 10 tine	1,51,200
	c) 11 tine	1,56,800
3.	Paddy Straw Chopper/ Shredder/Mulcher	
	a) Mounted type (Straw Chopper & Mulcher)	
	i) 5 ft	1,34,400
	ii) 6 ft	1,45,600
	iii) 7 ft	1,56,800
	iv) 8 ft	1,68,000
	b) Trailed type	2,52,000
	c) Combo type	2,80,000

4.	Shrub master / cutter cum spreader	44,800
5.	Hydraulic Reversible M.B. Plough	
	a) Two bottom	1,40,000
	b) Three bottom	1,79,000
6.	Rotary Slasher	44,800
7.	Zero Till drill	
	9 tine	42,560
	11 tine	48,160
	13 tine	53,760
	15 tine	56,000
8.	Rotavator	
	5 feet	84,000
	6 feet	89,600
	7 feet	95,200
	8 feet	1,00,800

12) **Test Report of the equipment/machine** - Copies of the valid test reports (in full) issued by FMTTIs or the identified institutions authorized by DAC&FW shall be submitted by the manufacturer along with the proposals. . The test reports issued by the Marathwada Agriculture University will not be considered valid as the authorization of this centre has been cancelled. One or two page test certificates or the certificate of the equipment which are currently undergoing test may not be considered valid. The test report should be specific to the make and model of the machine/equipment**.** The proposals should not be submitted for the equipments/machines for which test reports are not available with the manufacturers.

The condition of the testing on Super SMS will be relaxed for one year, provided that the PAU Ludhiana certify and approve the design and constructional requirements of the Super SMS manufactured by different manufacturers. The manufacturers should get their Super SMS tested within a period of one year. For rest of the equipments and machines, the test report from the FMTTIs/authorized testing institutions is mandatory.

13) The manufacturers should have the following and should be provided with the technical proposals:

(i) Proof of valid Registration/renewal of registration. The status of manufacturer will be considered as existing on the date of submission of proposal

(ii) PAN No, GSTIN Registration.

(iii) Certificate with respect to unconditional acceptance as per format attached as Appendix 'A'.

(iv) Copies of the valid test reports (in full) issued by FMTTIs or the identified institutions authorized by DAC&FW.

(v) Copies of bill of sale/sell letters for the latest last 10 machines sold.

14) The other terms and conditions will remain the same as per the Request for Proposal document of the Tender ID 2018_DACO_321289_1 available on the website at http://farmech.dac.gov.in/revised/1.1.2018/F-Empanelment%20of%20manufacturers.htm

Appendix-A

CONDITIONS ACCEPTANCE LETTER
(To be given on Company Letter Head)

Date:
To, _____
_____

SUB: ACCEPTANCE OF TERMS & CONDITIONS.

Dear Sir,

1. I/We have downloaded/obtained the proposal document(s) regarding **OPEN INVITATION OF PROPOSALS FOR EMPANELMENT OF MANUFACTURERS FOR SUPPLY OF MACHINERY AND EQUIPMENT FOR IN-SITU MANAGEMENT OF CROP RESIDUE IN THE STATES OF PUNJAB, HARYANA, UTTAR PRADESH AND NCT OF DELHI DURING THE FINANCIAL YEAR 2018-19,** from the web site(s) namely:
_____
_____as per your advertisement, given in the above mentioned website(s).

2. I/ We hereby certify that I / we have read entire terms and conditions of the documents and I/we shall abide hereby the terms /conditions/clauses contained therein.

3. The corrigendum(s) issued from time to time by your department/ organizations too have also been taken into consideration, while submitting this acceptance letter.

4. I / We hereby unconditionally accept the conditions of above mentioned proposal document(s) / corrigendum(s) in its totality / entirety.

5. I/we certify that, I/we are the manufacturers/OEM of the equipments/machines and have supplied more than 50 machines during the last 2 years

6. In case any provisions of this proposal are found violated , your department/ organization shall be at liberty to reject this proposal and we shall not have any claim/right against Deptt. in satisfaction of any condition.

Yours Faithfully,
(Signature of the manufacturer, with Official Seal)

Annexure –I (a)

SUPER STRAW MANAGEMENT SYSTEM (SMS) TO BE ATTACHED WITH COMBINE HARVESTER

Super Straw Management System (SMS) be attached to self-propelled combine harvesters, which cuts the paddy straw coming out of harvester combine into small pieces as well as spreads the same. The machine will facilitate the operations of other in situ straw management machinery like happy seeder, spatial no till drill mould board plough etc.

S.No.	Component	Details
1.	Combine	Self-propelled
2.	Combine cutter bar width, mm	4270
	Rotor	
3.	Rotor diameter, mm	165-170
4.	No. of lugs on rotor in a row	6
5.	No. of rows in periphery	4
6.	Length of pivotal flail, mm	172
7.	Width of flail, mm	50.8
8.	Thickness of flail, mm	5.4
9.	No. of flails in one set	2
10.	Spacing between flails of one set, mm	38-40
11.	Distance between adjacent flail units, mm	201.4
12.	No. of rows/bars of serrated blades	1
13.	No. of serrated blades in a row	24
14.	Spacing between serrated blades, mm	50
15.	Clearance between pivotal blade and concave, mm	22.5
16.	Overlapping of pivotal blade on serrated blade, mm	60 (adjustable)
17.	Rotor, rpm	1600-1800
	Spreader	
18.	Spreader curved width, mm	1676.4
19.	Total no. of flaps	6 + 2 (side)
20.	Length of flap, cm	47
21.	Distance between flaps, in (left to right)	adjustable
22.	Spreader angle with horizontal, degree	9° (adjustable)
23.	Spreader angle with line of travel, degree	15° (Adjustable 15°-25°)
24.	Spreader sheet thickness, mm	2.5-3.0
25.	SMS Sheet thickness, mm	4-5
26.	Rotor RPM indicator should be provided.	Rotor should be dynamically balanced
27.	*Marking/labeling of machine* :	The labeling plate should be riveted on the body of machine having Name and address of manufacturer, Country of origin, Make, Model, Year of manufacturer, Serial number, Type, Size, required size of prime mover (kW)

Performance: The size of chopped paddy straw should not be more than 20 cm

Annexure –I (b)

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. Happy Seeder consists of frame, seed box, fertilizer box, seed metering mechanism, fertilizer metering mechanism, seed tubes, a rotar shaft with flail type reversible straight gamma blade in front of the furrow opener assembly, inverted T-type furrow openers, seed adjusting lever and transport cum power transmitting wheel. The detailed specifications are as follows:

1.	Power source	45 HP or above Tractor
2.	Hitch Type	Three point linkage, CAT-I/CAT-II
3.	No. of tynes	9/10/11/12/13
4.	Row to row distance	225 mm
5.	Type of furrow openers	Inverted T-type
6.	Minimum Rotor drum diameter	700 mm
7.	Rotor shaft diameter	135-145 mm
8.	Rotor RPM	1400-1600 rpm at 540 rpm of tractor PTO
9.	Types of blades	Flail, reversible straight gamma type
10.	Blade material	Boron Steel
11.	Minimum diameter of ground wheel	550mm
12.	Blade overlapping above furrow openers	50-60 mm
13.	Hardness of furrow openers	35 to 43 HRC
14.	Seed and fertilizer hoppers	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. The thickness of sheet should be ≥ 1.0 mm for mild steel and ≥ 0.63 for GI sheet
15.	Working width, mm	1700 to 2400
16.	Seed and fertilizer tubes	Without any sharp bend and should be transparent, thickness (minimum 2.5 mm)
17.	Seed and Fertilizer metering mechanism	Components of fluted roller or plate type mechanism Shall conform to the requirement given in Annex. C and Annex. D of IS 6813 : 2000.
18.	Rotavator shield to prevent flying of mud & stone	Should be provided
19.	***Marking/labeling of machine***	The labeling plate should be riveted on the body of machine having Name and address of manufacturer, Country of origin, Make, Model, Year of manufacturer, Serial number, Type, Size, (Number of rows x Row spacing (cm), Name of crops sown Recommend, required size of prime mover (kW)
20.	Guard over propeller shaft	Should be provided
21.	***Literature***	Operator manual, Service manual and Parts catalogue should be provided

Performance

1.	Av.depth of seed sowing, cm	5 to 10
2.	Av.depth of fertilizer placement, cm	5 to 10
3.	Av.length of stubbles after seeder operation, cm	15 to 35
4.	The variation in dropping of seeds and fertilizers in different feeding outlets separately.	Shall not be more than 7.0 and 12.5 percent for seed and fertilizer respectively from average value
5.	The variation in dropping of quantity of seeds and	Shall not be more than 7.0 and 12.5

	fertilizers per hectare	percent for seed and fertilizer respectively from specified value
6.	Seed and fertilizer rate adjustment	Max. 125 kg/ha and 200 kg/ha for seed and fertilizer respectively
7.	Visible damage to seed	Should not be more than 1.0%
8.	The variation in dropping at various rated capacity	Should not be more than 10.0%
9.	The variation in quantity of seed dropping due to change in speed	Should not be more than 15.0%
10.	The variation in quantity of seed per meter of row length	Should not be more than 10.0%
11.	Placement of seed and fertilizer	Upto 100 mm deep

Annexure –I (c)

PADDY STRAW CHOPPER SHREDDER

Paddy Straw Chopper Shredder is used to chop the paddy straw left after combine harvesting and spreads the chopped straw evenly in the field. **Model I- Mounted Type**: It consists of a rotary shaft mounted with blades named as flails for harvesting and chopping the paddy straw. Power to rotary shaft is provided from tractor PTO through a gear box and belt pulley drives. Counter rows having serrated blades are mounted inside the concave which further assist in chopping the straw. **Model-II Trailed type**: Tractor operated paddy straw chopper with combine type/flail type cutting mechanism and double cylinder serrated chopping mechanism with concave.

Machine type	:	Tractor PTO driven, Mounted type	Tractor PTO driven, Trailed type
Power source	:	Tractor of 45 HP or above	Tractor of 55 HP or above
Working width, cm	:	150 (min.)	180 (min.)
Speed of flail rotary, rpm	:	1400-1500	900-1000
No. of row of flails	:	2-4	4
No. of flails on each rows	:	14-20	6
Shape of the flail	:	Inverted Gamma type	Flat Bar type
Cylinder dia. of chopping mechanism, cm	:	60	Large cylinder – 80/57 Small cylinder-40/25
No. of rows of serrated blades on chopping cylinder	:	-	Large cylinder – 14/10 Small cylinder-6/6
No. of rows of serrated blades on inside the concave	:	2-3	Large cylinder- 2-3 Small cylinder - 1
No. of blades on each rows	:	17-21	17-22
Marking/labeling of machine	:	The labeling plate should be riveted on the body of machine having Name and address of manufacturer, Country of origin, Make, Model, Year of manufacturer, Serial number, Type, Size, required size of prime mover (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. The machine should be easily serviceable with good availability of spare parts

SHRUB MASTER

Shrub Master is a tractor mounted machine suitable for controlling and cutting shrubs. Mainly used for flouting agriculture land, garden etc. Cutting height of the grass can be adjusted with the help of the skid arrangement. Operated by Tractor PTO shaft. Designed to operate at both 540 RPM and 1000 RPM tractors and fitted with grad net/ sheet swing at back.

Specifications

Recommended tractor Power (hp) : Minimum 35

Length x Width (mm): 1219 X 1219 to 1524 X 1524

Cutting Height (mm): 20 to 100

Field Capacity (ha/h) : 1.6 to 2.0

Weight (Kg) ~ 200

Blade material: Boron (28MnCrB5) / High Carbon Steel

Marking/labeling of machine	:	The labeling plate should be riveted on the body of machine having Name and address of manufacturer, Country of origin, Make, Model, Year of manufacturer, Serial number, Type, Size, required size of prime mover (kW)

Reversible M.B Plough

The two/three bottom reversible plough is a hydraulically /mechanically operated basic implement for preparation of land. The Mould Board (M.B) retains their mirror finish at all time contributing to well turned furrows. The plough should have special wear resistant steel bottoms with bar points for toughest ploughing jobs. Bar point bottom ensures longer life as it can be extended or reversed. The mould board bottom reversing mechanism should be operated by a lever provided on the distributor. When the implement is hitched, plough bottom should be free to rotate 180 degree along the axis of the hollow shaft. The detailed specifications are as below:

1.	Number of Bottoms	:	Two/Three
2.	Working width (mm)	:	600 minimum for two bottom/ 900 minimum for 3 bottom
3.	Working Depth (mm)	:	200 minimum
4.	Under frame Clearance (adjustable)	:	700 mm minimum
5.	Inter body Clearance	:	800 mm minimum
6.	Reversing mechanism	:	Hydraulically/ Mechanically operated
7.	Angle of Inclination of MB along the direction of travel (degree)	:	20 to 23
8.	Thickness of Mould Board	:	8 mm (minimum)
9.	Plough Share thickness	:	12 mm (minimum)
10.	Vertical Suction, mm	:	6 to 19
11.	Horizontal suction, mm	:	3 to 20
12	Mould board material	:	Boron (30MnCrB5) steel
13.	*Marking/labeling of machine*		The labeling plate should be riveted on the body of machine having Name and address of manufacturer, Country of origin, Make, Model, Year of manufacturer, Serial number, Type, Size, required size of prime mover (kW)

Performance:

1	Area covered (ha / h)	:	(0.2 – 0.3 ha/h) two bottom 0.3-0.4 ha/h for 3 bottom

Annexure –I (f)

ROTARY SLASHER

Rotary Slasher is a sturdy implement which is most suitable for slashing pasture topping and shrubs. It also very well suffices the purpose of maintaining grasslands, road verges and lawn. It is available in various assortments of width; 1.20 meters, 1.50 meters and 1.80 meters and can be coupled with tractors of 45 HP and above. These implements can easily slash plant residues as tall as 25 mm. Assembly of the implements is bolted onto two 8 mm thick plate shoes. Side rails perform the function of strengthening the structure of machine.

S.No.	**Parameters**	**Range**
1.	Working Width (mm)	1200 to 1800
2.	Tractor Power Kw(Hp)	26-44.74 (35-60)
3.	No of Blades	2
	Overall Dimension:	
4.	Length (mm)	1825 to 2418
5.	Width (mm)	1428 to1974
6.	Height (mm)	963
7.	Weight (Kg)	285 to 401
8.	Cutting Length (mm)	25 to 150 (adjustable)
9.	Protection	Rubber Flap
10.	PTO RPM	540
11.	Blade Speed (RPM)	1012
12.	: Marking/labeling of machine	The labeling plate should be riveted on the body of machine having Name and address of manufacturer, Country of origin, Make, Model, Year of manufacturer, Serial number, Type, Size, required size of prime mover (kW)

Annexure –I (g)

ZERO TILL SEED CUM FERTILIZER 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 desired row spacing. Zero till drill should be capable of sowing wheat crop in unprepared field after harvesting of paddy. The detailed technical specifications are as follows:

22.	Power source	35 HP or above Tractor
23.	Hitch Type	Three point linkage, CAT-I/CAT-II
24.	No. of tynes	9/11/13
25.	Row to row distance	150 to 225 mm (adjustable preferably in steps of 25 mm)
26.	Type of furrow openers	Inverted T-type
27.	Minimum diameter of ground wheel	300mm
28.	Hardness of furrow openers	35 to 43 HRC
29.	Seed and fertilizer hoppers	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. The thickness of sheet should be ≥ 1.0 mm for mild steel and ≥ 0.63 for GI sheet
30.	Working width, mm	1500 to 2400
31.	Seed and fertilizer tubes	Without any sharp bend and should be transparent, thickness (minimum 2.5 mm)
32.	Seed and Fertilizer metering mechanism	Components of fluted roller or plate type mechanism Shall conform to the requirement given in Annex. C and Annex. D of IS 6813: 2000.
33.	***Marking/labeling of machine***	The labeling plate should be riveted on the body of machine having Name and address of manufacturer, Country of origin, Make, Model, Year of manufacturer, Serial number, Type, Size, (Number of rows x Row spacing (cm), Name of crops sown Recommend, required size of prime mover (kW)
34.	***Literature***	Operator manual, Service manual and Parts catalogue should be provided

Performance

1.	Av.depth of seed sowing, cm	5 to 10
2.	Av.depth of fertilizer placement, cm	5 to 10
3.	The variation in dropping of seeds and fertilizers in different feeding outlets separately.	Shall not be more than 7.0 and 12.5 percent for seed and fertilizer respectively from average value
4.	The variation in dropping of quantity of seeds and fertilizers per hectare	Shall not be more than 7.0 and 12.5 percent for seed and fertilizer respectively from specified value
5.	Seed and fertilizer rate adjustment	Max. 125 kg/ha and 200 kg/ha for seed and fertilizer respectively
6.	Visible damage to seed	Should not be more than 1.0%
7.	The variation in dropping at various rated capacity	Should not be more than 10.0%
8.	The variation in quantity of seed dropping due to change in speed	Should not be more than 15.0%

9.	The variation in quantity of seed per meter of row length	Should not be more than 10.0%
10.	Placement of seed and fertilizer	Upto 100 mm deep

Annexure –I (h)

ROTAVATOR

It consists of a MS frame, a rotary shaft on which blades are mounted, power transmission system having primary and secondary speed reduction unit. The blades are made from Boron Steel, hardened and tempered to suitable hardness. Rotary motion of the tractor PTO is transmitted to the rotor shaft carrying the blades through transmission system having primary and secondary speed reduction unit. A good seedbed with pulverized soil is achieved in a single pass of the rotavator. The detailed technical specifications are as follows:

Type	:	Tractor PTO operated Rotavator
Power source	:	Tractor of 35 HP and above
Hitch Type	:	Three point, CAT-I/CAT-II
Working width (mm)	:	1500-2200
Type of blade	:	C shape with 25 mm overlap of blades or L/ J shape as per demand
Thickness of blade (mm)	:	7-8 (min.)
No. of Blades	:	Minimum of 36 (Depending on sizes)
Distance between consecutive flanges(mm)	:	200-242 (depending upon type and shape of blade)
Total number of flanges	:	6-10
Number of blades per flange	:	6 (max.)
Diameter of rotor shaft (mm)	:	75 - 85 & 85-90
Rotor diameter (including flange and blade mounted on flange, mm)	:	400-460
Revolution of rotor shaft (rpm)	:	180-240 (Single speed/ Multi Speed Variants)
Side Drive	:	Gear drive
Depth control mechanism	:	Arc shape skid on both side of rotavator
Material of blades	:	Boron (28MnCrB5) / High Carbon Steel
Safety clutch/device(Shear bolt) in PTO drive shaft	:	Should be provided
Rotavator stand	:	Should be provided
Rotavator shield to prevent flying of mud & stone	:	Should be provided
Guard over propeller shaft	:	Should be provided
Marking/labeling of machine	:	The labeling plate should be riveted on the body of machine having Name and address of manufacturer, Country of origin, Make, Model, Year of manufacturer, Serial number, Type, Size, required size of prime mover (kW)
Literature	:	Operator manual, Service manual and Parts catalogue should be provided
Dimensions of three point linkage	:	Should meet IS:4468 (part-I) 1997
Dimensions of power input connection (PIC) of Implement	:	Should meet IS:4931- 1995
Dimensions of power input connection (PIC) Yoke bore	:	Should meet IS:4931- 1995

The workmanship should be of high quality. It should not have sharp projections. All the moving parts should be properly protected /covered. Trailing board should be provided. 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 especially seal leakage. The machine should be easily serviceable with good availability of spare parts.

Performance

Depth of cut, cm	8 minimum
Hardness: Edge portion	53 to 59 HRC
Hardness: On Shank portion	37 to 45 HRC
Suitability for Wet land operation	Should be suitable for Wet Land operation
Depth of puddle in wet land operation, (cm)	12 Minimum
Effectiveness of sealing (presence of ingress of dust & water / mud in various sub assembles)	No ingress of mud & water in Primary reduction gear/box, Secondary reduction gear/box, Rotary axle bearing cap