

AGENCY FOR INTERNATIONAL DEVELOPMENT
 WASHINGTON, D. C. 20523
BIBLIOGRAPHIC INPUT SHEET

FOR AID USE ONLY

BATCH #28

1. SUBJECT CLASSIFICATION	A. PRIMARY Agriculture	AN20-0000-0000
	B. SECONDARY Farm equipment	

2. TITLE AND SUBTITLE
 Instruction manual: row seeder

3. AUTHOR(S)
 (101) IRR I

4. DOCUMENT DATE 1971	5. NUMBER OF PAGES 11p.	6. ARC NUMBER ARC 631.33.161
--------------------------	----------------------------	---------------------------------

7. REFERENCE ORGANIZATION NAME AND ADDRESS
 IRR I

8. SUPPLEMENTARY NOTES (Sponsoring Organization, Publishers, Availability)

9. ABSTRACT

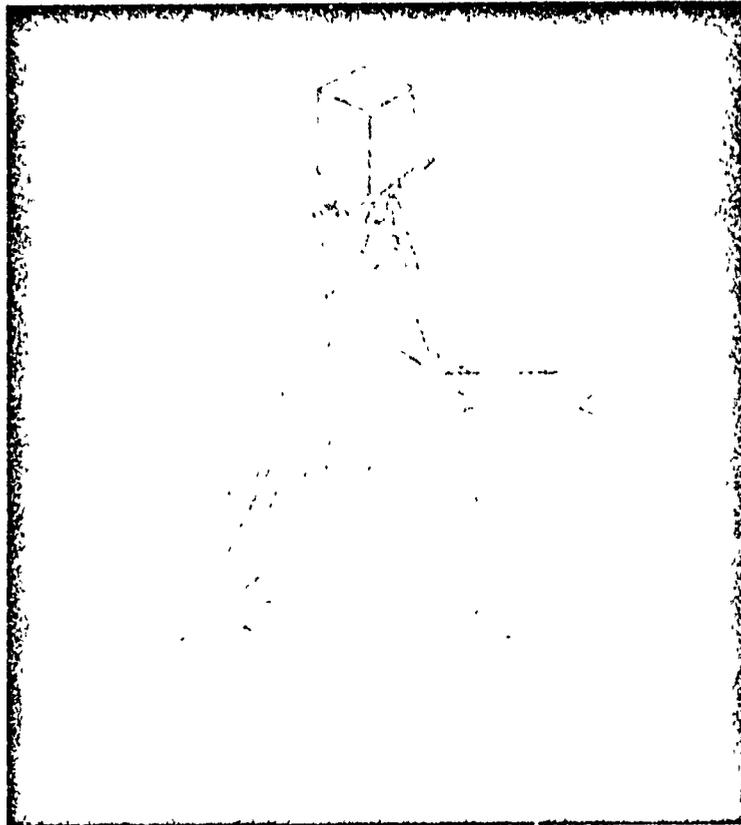
10. CONTROL NUMBER PN-RAB-574	11. PRICE OF DOCUMENT
12. DESCRIPTORS Education Manuals Planting Rice	13. PROJECT NUMBER
	14. CONTRACT NUMBER CSD-2541 Res.
	15. TYPE OF DOCUMENT
Small machines	

6

INSTRUCTION MANUAL

~~cat 834~~
GSD/2541

ROW SEEDER

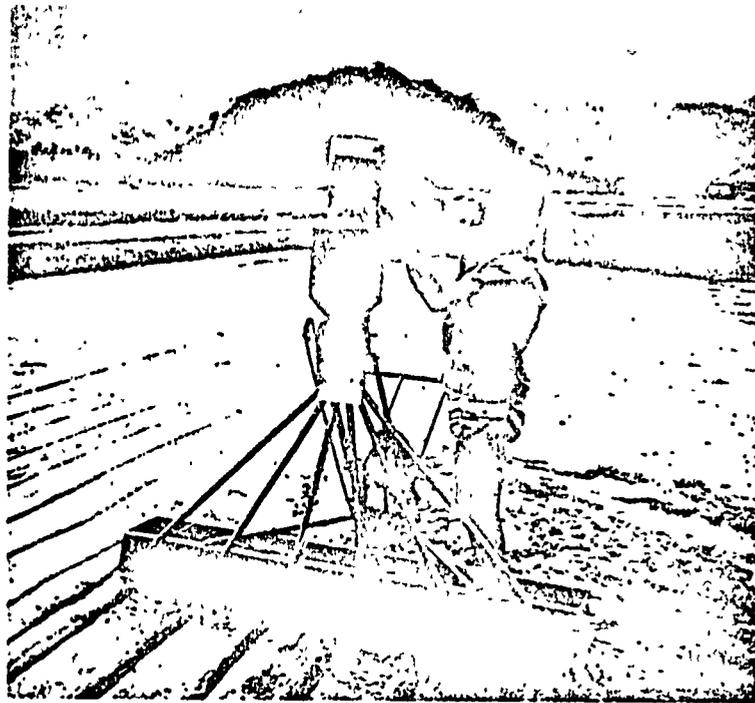


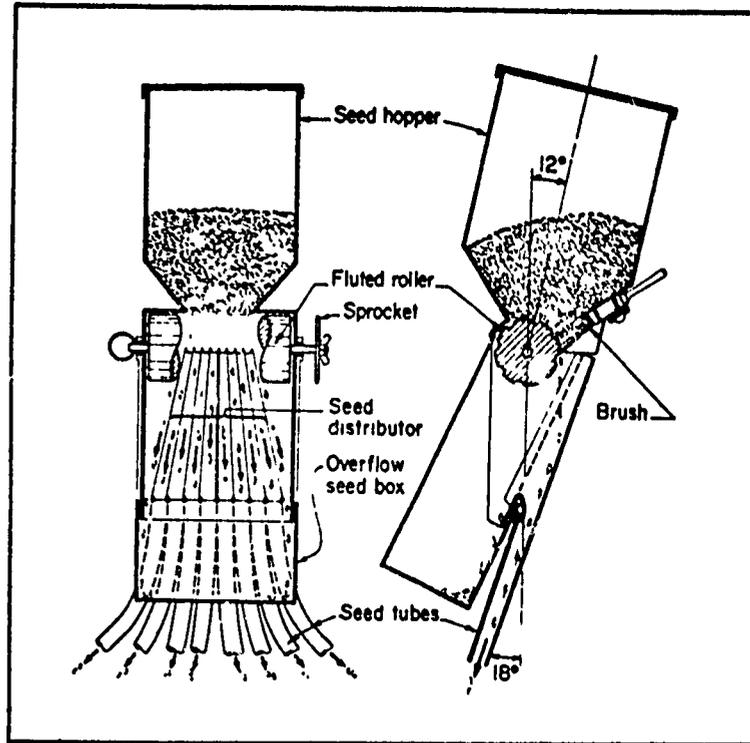
Designed and developed at **The International Rice Research Institute**

Manufactured by:

Seeder for pre-germinated paddy

The six- and eight-row seeders were developed to provide a low-cost alternative to transplanting. The machines can seed about 50 kilograms of pre-germinated rice seed per hectare on puddled soils at planting rates up to 25 times faster than manual transplanting.



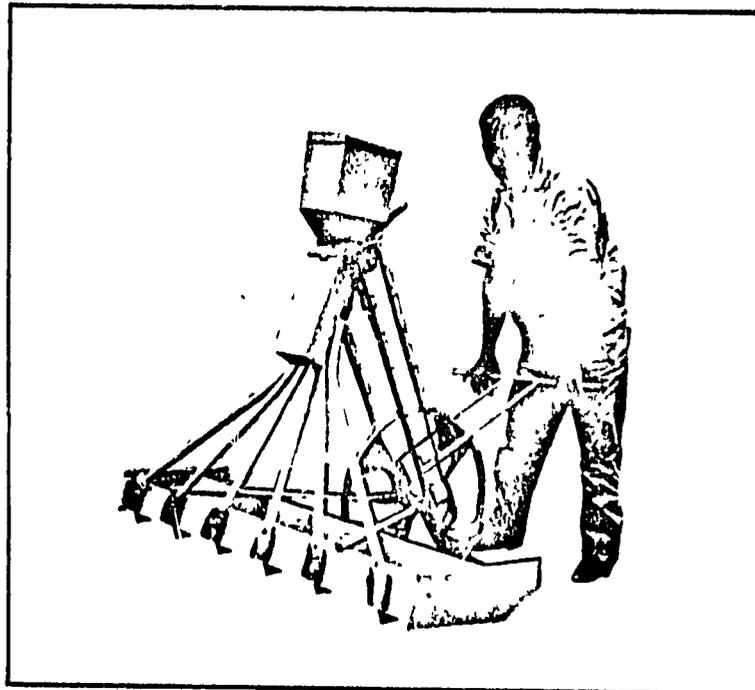


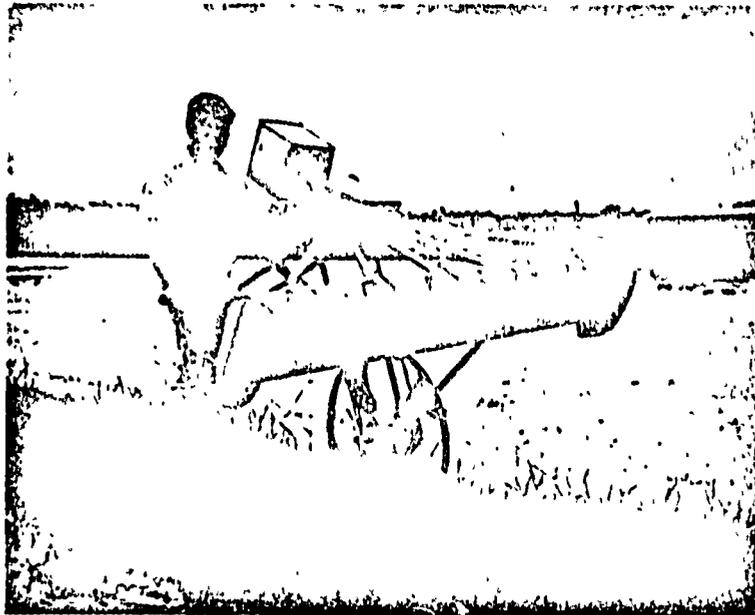
Seeder description and operation

The seed HOPPER holds 5 kilograms of seeds - enough to plant 0.1 ha. The illustrations show the integral parts of the seeder. The seeder has a two-step revolving METERING DEVICE. In step one, seeds fill in the flutes on the roller. In the second step, the roller drops the seeds into the distributing CHANNELS which lead to the SEED TUBES. A BRUSH pressed against the roller retains the remaining seeds in the hopper. Only the desired quantity of seed falls into each channel. Excess seed falls outside the channels and is caught in the EXCESS SEED BOX. Seeds fall from the channels through the seed tubes which are attached to a skid.

When the seeder is pulled in a puddled field, the **GROUND WHEEL** drives the fluted roller of the metering device. Four lugs welded to the wheel spokes assist wheel rotation in puddled soils. On hard ground, the wheel supports the machine and is used for movement on roads, paths and levees.

The **SKID** is designed to provide flotation and to minimize soil bulldozing. Two **SIDE PLATES** located at the ends of the skid prevent mud from flowing back over the seeded rows. They also help maintain straight rows by restricting side movement of the machine. **FURROW OPENERS** on the underside of the skid open small V-shaped furrows to provide optimal placement.





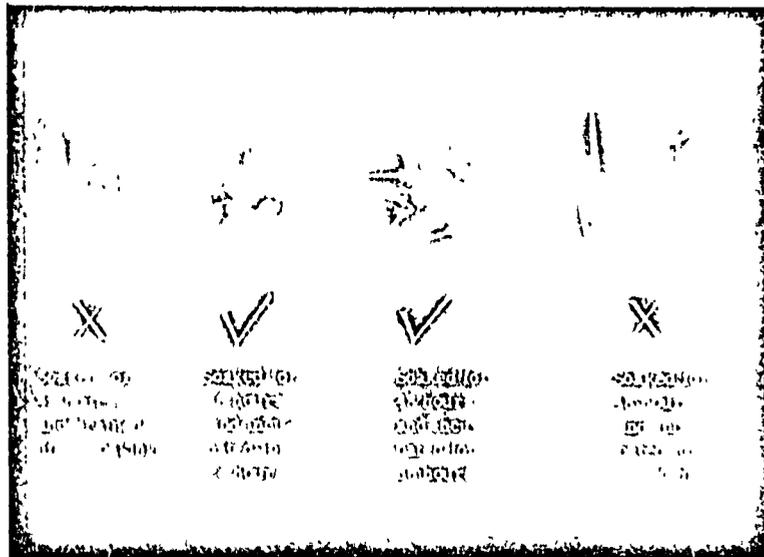
A HANDLE that can be adjusted for height allows the machine to be easily pushed during transport and pulled during seeding. Before seeding the operator adjusts the handle to the low position to ensure that the bottom of the skid is level with the surface of the soil. If seeding is done with the handle in the high position: (1) mud accumulates in front of the skid, (2) in soft soil, the ground wheel sticks making the machine difficult to pull and leaving an uneven field surface, and (3) in a shallow soil, a high handle position acts as a simple lever that tends to raise the skid with the wheel serving as a fulcrum resulting in irregular placement of seeds and uneven rows.

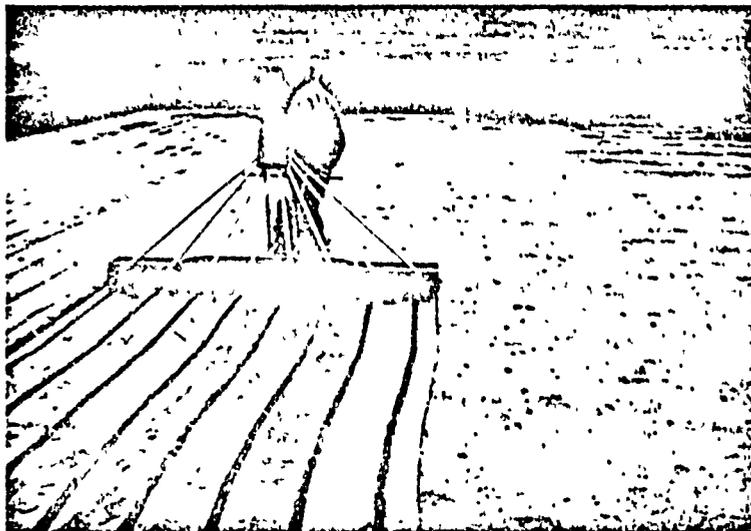
Germinating seeds

To obtain germinated seeds suitable for the seeder:

- Use good quality seed with a high germination count.
- Soak the seeds in fresh water for 24 to 48 hours at room temperature.
- After soaking wash the seeds with fresh water and pour the water and seeds into a wet burlap or jute sack.
- Wrap the sack with the seeds in two or three layers of thick, dry canvas. For proper incubation, keep the seeds in the canvas on a dry, shady floor for 24 to 36 hours.

Following these instructions will produce germinated seeds which will be dry to the touch. Seedcoats should either be just broken or the seeds may have sprouts up to 1 cm long as shown in the illustration.





Preparing the field for seeding

After thorough puddling, level and drain the field -- preferably the day before seeding. If the soil is prepared in this way the planted furrows will be uniform and wet, ensuring that the seed will develop adequate soil contact. If there is standing water on the field, the skid and furrow openers may displace excessive amounts of mud which will disturb the seeds in adjacent rows. If the field is too dry, the furrow openers may not penetrate sufficiently to ensure adequate seed contact with the soil. Caution: Do not use the seeder if a severe rain storm or flooding is expected. Uneven rows and poor plant emergence will result.

Use of the machine

Handle: Adjust to the highest position for transporting the seeder to or across fields. Lower the handle for seeding.

Hopper: Keep empty during transport and storage; use only germinated seeds which are dry to the touch; keep the top cover closed while operating the seeder and do not allow moisture to enter or accumulate in the hopper.

Brush: Be sure the brush is pressed tightly against the roller without disarranging the bristles. If, however, the sprouts are 1 cm or longer, the brush should be adjusted so the tips of the bristles just touch the roller.

Roller: Engage the drive by the wingnut only during seeding operation; keep it disengaged during transport.

Care and maintenance

After using the seeder, clean all accumulated mud and dirt from exposed parts. Lubricate all moving parts daily and before storage, including the drive chain and the bearings on the drive wheel and metering mechanism. At the end of the sowing season, all exposed bare metal should be painted to prevent rust and corrosion.

Drive chain tension is maintained by means of two bolts on the lower part of the metering mechanism. Do not operate the machine with excessive chain tension.

During storage, remove the brush and store it separately, otherwise the bristles will take a permanent set and may not perform well.

Clogging

Clogging will occur in the hopper, in the channel openings, or in the lower openings of the seed tubes if:

- The seed sprouts are too long (more than 1 cm).
- Mud covers the lower openings of the seed tubes.
- The machine or the seeds are wet.

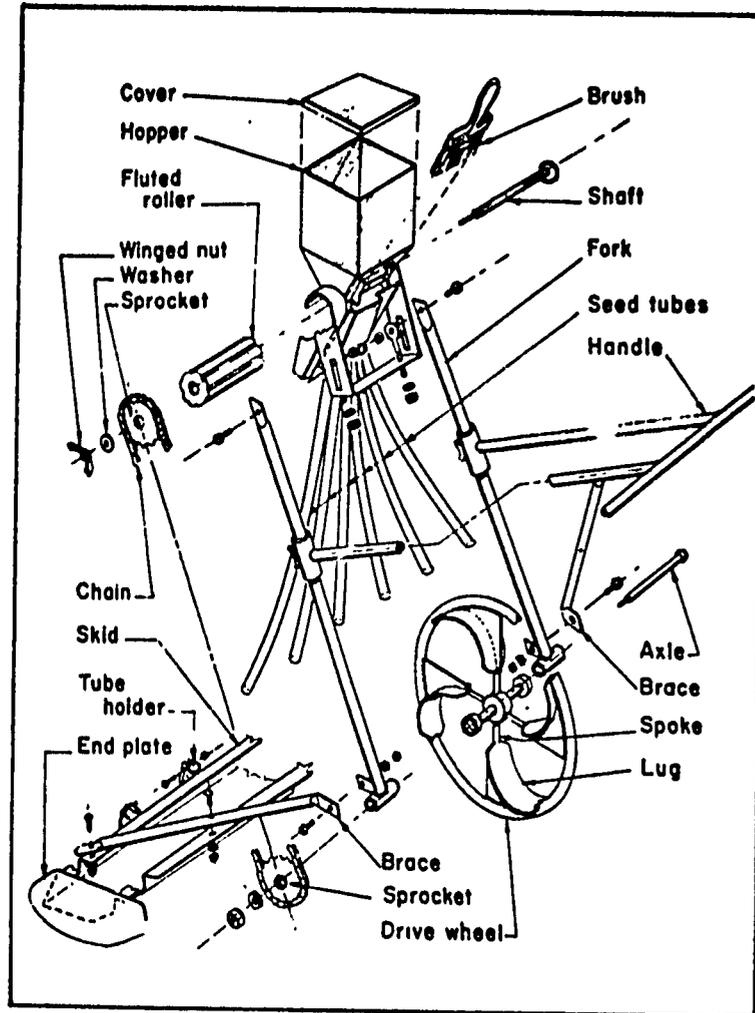
To prevent clogging:

- Use germinated seeds whose seedcoats are just broken or whose sprouts are less than 1 cm in length. If wet, the seeds should be spread on dry rag or jute sack until dry to the touch.
- Keep the openings of the seed tubes clean. While seeding check the seeded rows from time to time to - make sure there is a continuous flow of seed through the seed tubes.
- Keep the inside of the machine dry and the hopper closed.

Care of field after seeding

The first 6 days: Keep the field drained. Make small drainage channels along the levees and across the plot to drain away excess water that accumulates from seepage or rain. If the soil becomes dry or starts to crack add enough water to return it to a saturated condition.

The 7th day: Flood the field to 2.5 to 5 cm depth. Once the stand is established follow the recommended management practice for your crop and soil conditions.



SPECIFICATIONS

	6-ROW	8-ROW
WEIGHT (kg)	18.00	20.00
LENGTH (M)	1.10	1.10
WIDTH (M)	1.50	2.00
HEIGHT	1.20	1.33
SEEDING CAP. (man hrs/ha)	7.00	5.00
AMOUNT OF SEED/ha (kg)	50.00	50.00
HOPPER CAP. (kg at 14% MC)	5.00	5.00
ROW SPACING (CM)	25.00	25.00

Design work conducted under IRR/IAID Contract
No. csd-2541.