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AGRIBAR COMPONENTS

Seating

L-rod
Split pins

Handle assembly

Tool tray

Wheel assembly

Wheel assembly

Toolbar

Beam
Tools for Agribar assembly

Spanner 17/19
Spanner 24/26
Hammer

Pliers
Tommybar

Recommended spares

Split pins
L-pins
Flat washers
Spring washers
Bolts
Nuts
Attachments for cultivation

These markings show the positions of the attachments

Steering handle
Steerable toolbar

Plow standard
Moldboard plow

Ridger standard
Clamp
Ridger

Rigid tines
2-m chain

Center
19 cm

38 cm
Attachments for sowing

Wooden bowls  Single-row bowl  Furrow opener with press-wheel

Plastic tubes

The T-stand

T-stand  Clamp
Fixing the beam to the toolbar

1. Fit the end of the beam between the 2 plates on the toolbar
2. Insert a large bolt from the left side
3. Fit a spring washer and nut and tighten firmly
4. Insert an L-pin in the middle hole in the left plate
   - The L-pin should pass all the way through a hole on the beam and the right plate
5. Secure the L-pin by inserting an R-pin

Adjusting the pitch
Fixing the handle assembly

Fix the handle assembly to the plates

with 2 bolts

2 spring washers and 2 nuts
Fixing the seat to the tool tray

Align the holes under the seat with the holes in the brackets on the handles

Insert L-pins and secure them with split pins

Align the holes under the tool tray with the holes in the plates on the toolbar

Insert L-pins and secure them with split pins
Fixing the wheel support assemblies

Fix a wheel assembly on one end of the toolbar with
2 bolts
2 spring washers
2 nuts

Lifting handle raised and toolbar lowered

Fix the second wheel support assembly on the other end of the toolbar with
2 bolts, 2 spring washers, and 2 nuts

Lifting handle lowered and toolbar raised
**FLAT LAND: Preparation for plowing**

Plowing of flat land with a single moldboard plow

Fix the right-hand plow 10-cm (4 inches) to the right of the center of the toolbar.

Fix the right wheel nearer to the center of the toolbar.

Raise the toolbar by pulling the handles down fully.

Slide one clamp on either side of the plow standard.

Insert the square pins through the holes on the clamps.

Tighten the eye bolts firmly with a tommybar.

Wheel fixed to outer 2 holes
Hitching  Depth adjustment

Hitch the bullocks 80 cm apart

Loosen the eye bolts on either side of the depth adjusters

with the tommybar

Slide the depth adjusters:

backwards to reduce the depth of working

forwards to increase the depth of working
Pitch adjustment

Check if the plow standard is vertical

If the plow standard is not vertical, remove the L-pin from the beam

Align the hole in the beam with another hole on the plates to make the plow standard vertical

Insert the L-pin and secure it with an R-pin
Take the Agribar to the field, lower the toolbar and begin plowing

Lower the toolbar by lifting the handles

Check the depth of working, and the pitch, and make adjustments if necessary
<table>
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<th><strong>Width of cut</strong></th>
<th><strong>FLAT LAND plowing</strong></th>
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**1st pass**
- Plow the 1st pass in a straight line
- Before turning, lift the plow fully

**2nd pass**
- Position the right wheel in the furrow, and lower the toolbar

**To reduce the width of cut and lighten the load on the bullocks, loosen the clamps and move the plow slightly to the right**

**Firmly tighten the clamps**
3rd pass

Position the right wheel on the plowed land

4th pass

The toolbar is not level when the right wheel is on the plowed land...

Caution

Select the right width and depth of plow to avoid straining the bullocks.

Lift the toolbar fully before turning.

Plow when the soil is in good condition to avoid straining the bullocks.

so level the toolbar by sliding the depth adjusters...

backwards to reduce the depth

or forwards to increase the depth
FLAT LAND: Cultivation with rigid tines

Position of the wheels

For cultivation, the right wheel can be at end of the toolbar...
or near the center of the toolbar. This position is preferable because it avoids running the wheels over cultivated soil.

Cultivation with rigid tines

- **3 tines on the steerable toolbar**
- **2 tines on the main toolbar**

Insert locking pins

Fit the steerable toolbar to the main toolbar.

38 cm

38 cm
Checking the position of the tines

- Measure the height above the clamp
- The height should be the same on all tines
- Adjust the distance between the points of the tines

Checking the depth adjustment of the tines

- Start cultivating from one end of the field and observe the depth of working
- If necessary adjust the depth of working

Slide the depth adjusters backwards to reduce the depth of working...
Slide the depth adjusters forwards to increase the depth of working...
Or vary the height of the individual tines
Fit a steerable toolbar to the main toolbar.

Insert locking pins.

Fit a 120-cm blade harrow to the center of the steerable toolbar.

Fix the blade harrow with 2 clamps.

If necessary, adjust the depth of working...

- Slide the depth adjusters backwards to reduce the depth of working...
- Slide the depth adjusters forwards to increase the depth of working...
- Or vary the height of the blade harrow...
When turning at the end of a pass, raise the toolbar fully to avoid damage to the attachments.

Caution

If the depth is correct, complete the cultivation of the field.
Crops are grown on broad seedbeds separated by furrows 150 cm apart.

The broadbeds should be on a slope of about 0.4-0.8%. Mark the key line with pegs (or lime).

If the broadbeds are completely level, there will be no drainage.

If the broadbeds slope too much the water will run off, causing erosion.

The system of cultivation is good for deep black soils (Vertisols).
BROADBEDS: Shaping

Making broadbeds for the first time

Fit 2 ridgers on the toolbar directly behind the wheels

Hitch the bullocks 150 cm apart directly ahead of the wheels

Take the Agribar to the field

Lower the toolbar by lifting the handles

Start moving parallel to the key line

Check that the ridgers are at the correct depth
Adjusting the depth and pitch

Slide the depth adjusters forward to increase the depth of working.

Slide the depth adjusters backward to reduce the depth of working.

If necessary, adjust the pitch.

If the ridger standard is not vertical...

Align the hole in the beam with another hole on the plate to make the ridger vertical.

Continue moving parallel to the key line.

Lift the toolbar before turning.

1st pass
In the first pass be careful to follow the key line. Work at a shallow depth so that the bullocks may walk in a straight line without strain.

Always turn outside the field or in the waterway, and lift the toolbar fully before turning.

**Caution**
BROADBEDS
BROADBEDS: Plowing

Primary tillage on existing broadbeds is done in 4 passes

1st pass
with 1 ridger

2nd pass
with 2 plows

3rd pass
with 2 plows

4th pass
with 2 ridgers
1st pass

**Opening the center of the broadbed**

- Fit the ridger in the center of the toolbar.
- Fit the wheels at the ends of the toolbar.
- Take the Agribar to the field.
- Lower the toolbar by lifting the handles...

... and start moving.
Adjusting the depth
Slide the depth adjusters to alter the depth of working

Adjusting the pitch
If the standard is not vertical, move the L-pin to another hole to change the pitch

Complete making furrows in the center of the broadbeds throughout the field
2nd pass

Plowing at 70-cm spacing

Remove the ridger

Fit 2 plows
to the toolbar

Fit 1 right-hand plow
35 cm left of the center

Fit 1 left-hand plow
35 cm right of the center

Position the wheels in the furrows
Adjusting the depth

Slide the depth adjusters to alter the depth of working

Adjusting the pitch

If the standard is not vertical, move the L-pin to another hole to change the pitch

Finish plowing the field

Caution

Make the turns outside the field or in the waterway.

Lift the toolbar fully before turning.

Drive the bullocks carefully so that they walk in the furrows without strain.

Tighten the clamps occasionally while working.
3rd pass

Plowing at 110-cm spacing

Change the position of the plows

Fit 1 right-hand plow
55 cm left of the center

Fit 1 left-hand plow
55 cm right of the center
**Adjusting the depth**

Slide the depth adjusters to alter the depth of working.

**Adjusting the pitch**

If the standard is not vertical, move the L-pin to another hole to change the pitch.

---

*Finish plowing the field*
Fit 1 ridger behind the wheel
75 cm from the center

Position the wheels in the furrows

Remove the plows
Fit 2 ridgers

Fit 1 ridger behind the wheel
75 cm from the center

4th pass

Tillage in the furrows
Adjusting the depth

Slide the depth adjusters to alter the depth of working

Adjusting the pitch

If the standard is not vertical, move the L-pin to another hole to change the pitch

Finish ridging the field

Finish ridging the field
**Fitting the steerable toolbar and rigid tines**

Insert locking pins

Fit tines:

- 3 tines on the steerable toolbar
- 2 tines on the main toolbar

Fit the steerable toolbar to the main toolbar

**Checking the height of the tines**

Measure the height above the clamp

The height should be the same on all tines

The rigid tines fitted for cultivation

**BROADBEDS: Cultivation with rigid tines**
Adjusting the depth

Slide the depth adjusters to alter the depth of working

Adjusting the pitch

If the standard is not vertical, move the L-pin to another hole to change the pitch

Finish cultivating the field
Fitting the blade harrow and 2 ridgers

Fit 1 ridger behind the wheel 75 cm from the center.

Fit a 120-cm blade harrow at the center of the toolbar.

Check the position of the blade harrow and the ridgers.

The ridgers and blade harrow fitted for cultivation.
Adjusting the depth

Adjust the depth by changing the height of the blade.

Adjusting the pitch

If the standard is not vertical, move the L-pin to another hole to change the pitch.

Position the wheels in the furrows and cultivate the field.

---

**Caution**

Make the turns outside the field or in the waterway.

Lift the toolbar fully before turning.

Drive the bullocks carefully so that they walk in the furrows without strain.

Tighten the clamps occasionally while working.
**BROADBEDS: Shaping with a chain**

Bed shaping is the last part of seedbed preparation

Fit a 120-cm blade harrow and 2 ridgers to the main toolbar

The chain attached for final bed shaping

Hook a 200-cm heavy link chain to the 2 n'dgers ...

Adjusting the depth

Move the hooks to one of the upper holes to decrease soil movement

Move the hooks to lower holes to increase soil movement

3rd hole from the bottom
Adjusting the depth

Slide the depth adjusters to alter the depth of working:

- backwards to decrease depth
- forwards to increase depth

Caution

Make the turns outside the field.

Lift the toolbar fully before turning.

Drive the bullocks carefully so that they walk in the furrows without strain.
**BROADBEDS: Sowing and fertilizer application**

### Sowing a sole crop

The Agribar can sow up to 4 rows at any row spacing.

The Agribar can sow a sole crop at any row spacing.

### Sowing an intercrop

The Agribar can sow an intercrop at any row spacing.

The Agribar can sow an intercrop at any row spacing.

### Recommended spacing of rows

- 30 cm
- 30 cm
- 30 cm
- 45 cm
- 45 cm
- 60 cm
- 90 cm

[Diagram showing recommended spacing of rows]
Fertilizer can be applied as a top dressing

Fertilizer is placed 3 cm to the side of the seed
Preparation for sowing BROADBEDS at

Fitting the 4 furrow openers

Check that the furrow openers are 30 cm apart

Fit a furrow opener to the left of the next one

Fit a furrow opener 15 cm left of center

Fit a furrow opener 15 cm right of center

Fit a furrow opener 30 cm right of the next one

Measure the height above the clamps

The height should be the same on all furrow openers

Fitting the furrow opener

Fitting the 4 furrow openers

Preparation for sowing BROADBEDS at
**30-cm spacing**

**Fitting the T-stand**

Fit 2, 4-hole wooden bowls to a T-stand.

**Fitting the tubes**

Fit 4 plastic tubes to each bowl.

Fit the T-stand to the center of the toolbar using a clamp.
Fitting the springs

Fit 2 conical springs to each furrow opener.

Notice that a spring wire projects from the hole in the furrow opener.

Fitting the tubes to the furrow openers

Attach 4 plastic tubes from under the left bowl to the front spring on each furrow opener.

Attach 4 plastic tubes from under the right bowl to the back spring on each furrow opener.

1 wooden bowl is for fertilizer.

1 wooden bowl is for seed.
Sowing BROADBEDS at 30-cm spacing

Take the Agribar to the field and lower the toolbar by lifting the handles.

2 persons are needed to drop the seed and fertilizer into the wooden bowls.

Adjust the depth by varying the height of the furrow openers or by moving the depth adjusters.

Check the depth of seed placement in all 4 lines.
BROADBEDS: Sowing an intercrop at 45-cm

Fitting the 3 furrow openers

Check that the furrow openers are 45 cm apart
Spacing (cereal and pigeonpea)

Fitting the T-stand and single stand

- Fit 2 wooden bowls to a T-stand
- Fit a T-stand near to the center of the toolbar with a clamp
- Fit 1 tube to the bowl

Fitting the tubes

- Fit a single-row bowl to a stand
- Fit the single-row bowl stand to the right side
- Fit 1 tube to the bowl
Fitting the tubes to the furrow openers

1 wooden bowl is for fertilizer (block the unconnected holes)

1 wooden bowl is for cereal seed (block the unconnected holes)

The single-row bowl is for pigeonpea

Attach 3 plastic tubes from the left bowl to each furrow opener

Attach 2 plastic tubes from the right bowl to the outside furrow openers

Attach the plastic tube to the center furrow opener

Take the Agribar to the field and lower the toolbar by lifting the handles

1 wooden bowl is for fertilizer (block the unconnected holes)

1 wooden bowl is for cereal seed (block the unconnected holes)
Sowing cereal and pigeonpea with fertilizer

3 persons are needed to drop the fertilizer, cereal seed, and pigeonpeas into the bowls.

Check the depth of seed in all 3 lines.

If necessary, adjust the depth by sliding the depth adjusters...

or by changing the height of the furrow openers...

Cereal seed
Fertilizer
Pigeonpea

Note
The photograph illustrates the choice an operator has in placing the bowls. Here, the cereal seed and fertilizer bowls have been interchanged for operational convenience.

Caution

Turn outside the field or in the waterway.

Lift the toolbar fully before turning.

Apply recommended quantities of seed and drop them evenly into the bowls.

Check the openings of the furrow openers often to see that they are not blocked.
**BROADBEDS: Interrow cultivation at 30-cm**

**Fitting the steerable toolbar**

*Fit the steerable toolbar to the main toolbar*

**Fitting the steering handle**

*Fit the steering handle to the steerable toolbar*
Fitting the ridgers

Fit 1 ridger on the main toolbar behind each wheel

Fitting the rigid tines

Fit 3 rigid tines on the steerable toolbar

1 person is needed to steer the steerable toolbar
The steerable toolbar

The steering handle moves the steerable toolbar to avoid damaging the crop.
Take the Agribar to the field

Lower the toolbar by lifting the handles

Adjust the depth by sliding the depth adjusters...

or by changing the height of the tines
Fitting the ridgers

1 person is needed to steer the steerable toolbar

Adjust the depth by sliding the depth adjusters...
or by changing the height of the tines

Lower the toolbar by liltting the handles

Fit 2 rigid tines on the steerable toolbar

Fit 1 ridger on the main toolbar behind each wheel

Position of the ridgers and tines

BROADBEDS: Interrow cultivation at 45-cm
Caution

Make the turns outside the field.

Lift the toolbar fully before turning.

Drive the bullocks carefully and steer the toolbar carefully to avoid damaging the crop when the plants are not in straight rows.