Operator's Manual

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SAFETY

RECOGNIZING SAFETY WARNINGS

This is a safety-alert symbol. When you see this Symbol on your machine or in this manual, be alert to the potential for personal injury when operating the machine.

Follow recommended precautions and safe operating practices.

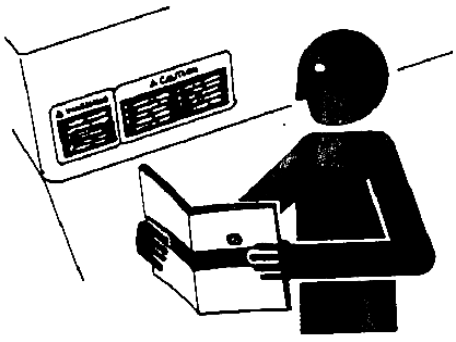
UNDERSTANDING SIGNAL WORDS

A signal word -DANGER, WARNING, or CAUTION- is used with the safety-alert symbol. DANGER identifies the most serious hazards.

DANGER or WARNING safety signs are located near specific hazards. General precautions are listed on CAUTION safety signs.
CAUTION also calls attention to safety messages in this manual.

FOLLOWING SAFETY INSTRUCTIONS

Carefully read all safety messages in this manual and on your machine safety signs. Keep safety signs in good condition.
Replace missing or damaged safety signs. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs are available from your GHERARDI dealer.

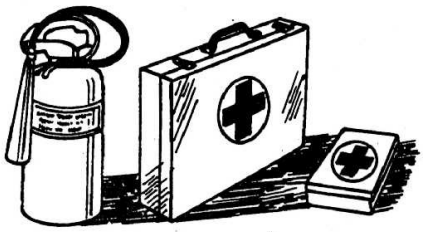


Learn how to operate the machine and how to use controls properly. Do not let anyone operate the machine without instruction.

Keep your machine in proper working condition. Unauthorized modifications to the machine may impair the function and/or safety and affect machine life.

If you do not understand any part of this manual and need assistance, contact your GHERARDI dealer.

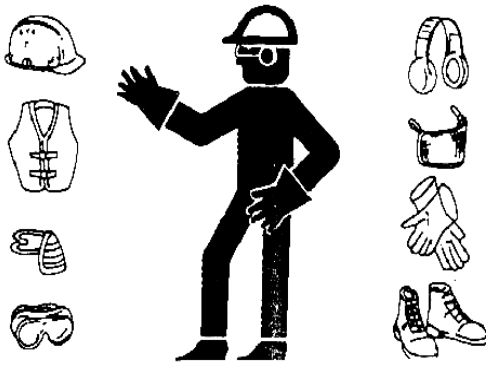
PREPARING FOR EMERGENCIES



Be prepared if a fire starts.

Keep a first aid kit and fire extinguisher handy.
Keep emergency numbers for doctors, ambulance service, hospital, and fire department near your telephone.

WEARING PROTECTIVE CLOTHING



Avoid lose-fitting clothing and use safety equipment appropriate to the job.

Prolonged exposure to loud noise can cause impairment or loss of hearing.
Wear a suitable hearing protective device such as earmuffs or earplugs (mainly when working with NEUMATIC machines).

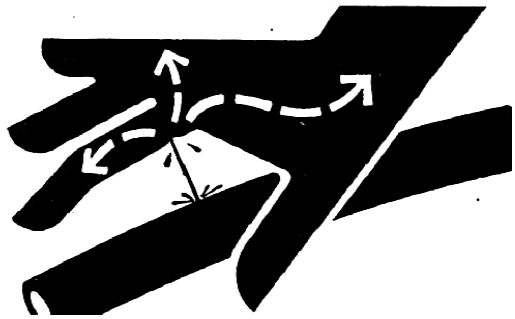
Safely operating the equipment requires the operator's full attention. Do not wear radio or music headphones while operating the machine.

SAFE OPERATION

Always wear protective gloves during adjustment operations.

Always raise cylinders and move safety locks into position before adjustment or maintenance operations under the machine.

AVOIDING HIGH PRESSURE LEAKS



Leaking fluid under pressure can penetrate the skin causing serious injury.
Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines.
Tighten all connections before applying pressure to the circuit.

Search for leaks with a piece of cardboard.

Do not put hands or body near high pressure leaks.

If, in spite of this precaution, an accident occurs, see a specialist doctor immediately.

PRACTISING SAFE MAINTENANCE

Understand service procedure before operating the machine.
Keep area clean and dry.

Never lubricate, service, or adjust the machine while it is moving. Keep hands, feet, and clothing away from power-driven parts.

Disengage all power and operate controls to relieve pressure. Lower the equipment to the ground.
Stop the engine. Remove the key.
Allow machine to cool.

Securely support any machine elements that must be raised for service work.

Keep all parts in good condition and properly installed. Fix damage immediately.
Replace worn or broken parts.
Remove any buildup of grease, oil, or debris.

Disconnect battery ground cable (-) before making adjustments on electrical systems or welding on machine.

USING A SAFETY CHAIN

A safety chain will help control drawn equipment should it accidentally separate from the drawbar.

Using the appropriate adapter parts, attach the chain to the tractor drawbar support or other specified anchor location. Allow only enough slack in the chain to permit turning.

Use a chain with a strength rating equal to or greater than the gross weight of the towed machine. Do not use safety chain for towing.

SAFELY TRANSPORTING THE MACHINE

Shift tractor into the lowest gear when transporting down steep slopes or hills.

Make sure that lights and flashing warning lights are easily visible from behind.

Stop slowly.
Bear in mind the width of the machine you are transporting.

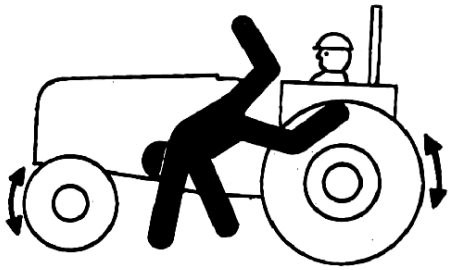
Empty fertilizer and seed boxes completely before transporting the drill.
DO NOT EXCEED maximum speed of 10 mph (16 km/h) if drill is not empty.

DO NOT EXCEED maximum speed of 10 mph (16 km/h) when transporting two hitched units.

Lock up cylinders of hydraulic lifting system before transporting the drill. Hydraulic failure can allow machine to fall rapidly.

KEEPING RIDERS OFF THE MACHINE

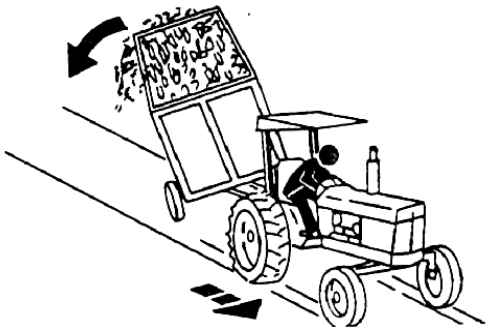
Only allow the operator on the machine, keep riders off.



Riders on machine are subject to injury such as being struck by foreign objects and being thrown off the machine.
Riders also obstruct the operator's view resulting in the machine being operated in an unsafe manner.

TOWING LOADS SAFELY AND SLOWLY

Braking fully from the transporting speed can cause the towed load to lose control and overturn. Reduce speed if towed load speed is greater han the tractor weight and the towed load has no brakes.



Observe these recommended maximum road speeds and weight.
* When towing a load equal to or lower than the tractor weight, do not travel faster than 20 mph (35 km/h).
* Reduce speed to 10 mph (15 km/h) when towing a load whose weight is up to the double the tractor weight.
* Do not tow loads that double the tractor weight.
* Use additional caution when towing loads under adverse surface conditions, when turning, and on slopes.

HANDLING PESTICIDES AND FERTILIZERS SAFELY

Keep powders off your skin or hair.

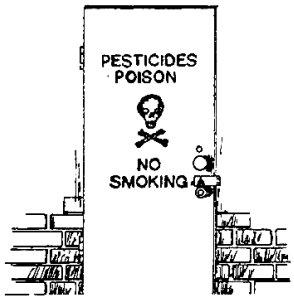
Keep containers in a low position when pouring.

Let the wind take dusts, smokes or spray away from you when mixing with seeds or filling tanks.
Wear a filter respirator if dust cannot be avoided.

Wear safety glasses to protect your eyes.

Wash exposed skin areas frequently.
DO NOT allow pesticides to remain on your skin.

Do not smoke when handling pesticides.



Always dispose of used containers or unused pesticides properly. Keep treated seeds and fertilizers apart.

Store pesticides in clearly labeled places and in a closed building.

Store pesticides clearly labeled in their original containers.

SERVICING AND MAINTENANCE

- **CHECK** the tightness of all bolts during the first seven (7) days of operation.

- **GREASE** all nipples and lubricate all mechanisms before starting the machine. SEE frequency of greasing required.

- **OIL** all machine chains at regular intervals. They must not lack lubrication.

- **DO NOT** park the machine when openers are in the ground once the task is finished, since the openers and springs will have to bear the load. The machine must rest on the cylinder locks with the hydraulic circuit discharged.

- **DO NOT** transport the machine with a loaded box, the maximum transporting speed is 10 mph (15 km/h).

- **CLEAN** seed boxes properly and meters regularly leaving them free of seeds.

- **FERTILIZER COMPARTMENT**: Clean compartment thoroughly. In cold weather and if the drill is to be used the following day, it would be convenient to fill up the compartments the night before and cover the machine with a canvas. This will prevent humidity condensation within the compartment. Clean all elements thoroughly when planting is complete if elements are not to be used for a long time. Rinse with water and apply fuel oil or a light lubricant to avoid the corrosive effects of fertilizers. For correct system operation, use quality products with no big lumps. For good results, choose products with humidity-resistant formulation. ASK YOUR PROVIDER.

- The words LEFT-RIGHT-FRONT and REAR as used in this manual are determined looking the machine from behind.

TECHNICAL SPECIFICATIONS

1. OPERATING CAPACITY

No. of rows	Spacing in cm	Working width in m
25	17.5	4.37
13	35	4.55
9	52.5	4.72
7	70	4.90

No. of rows	Spacing in cm	Working width in m
21	21	4.41
11	42	4.62
7	63	4.41

2. DRILL OVERVIEW

2.1 – PRIMARY BOX

Capacity 1000 litres. Meters with double external roller located on the two shafts.
Gearbox.
Options:

a) Lengthwise partition for different species of seeds in each half of the box.
b) Lengthwise baffle to cancel half seedbox when planting at 35 cm and at 70 cm between rows.

2.2 – LEGUME BOX

Capacity 140 litres. Meters with simple external pulley wheel. Seeds are placed inside the openers or ahead of the press wheel. Speed variator to achieve various seed population rates.

2.3 – FERTILIZER COMPARTMENT

Two compartments of 480 litres each. Meters are "Chevron" type with brush and bottom that tilts for easy cleaning. Protective cover.

2.4 – HYDRAULIC CIRCUIT

# cyl./task	2
# cyl./transport	2
# cyl./marker	2
# cyl. raising drill tongue	1
# cyl. raising level action	1

One connection to tractor. Two connections to tractor (optional).
Sequential box for markers' alternate drive.
Divider box controlling proportional flow to raise drill evenly.

2.5 – RAISING

By means of two hydraulic cylinders mounted on the wheel supports. Movable arm system to ensure permanent contact of wheels and soil.
Hitch with leveling system.

2.6 – WHEELS

Two rims for 12.40 x 28 tires. Opener to soil clearance 0.15 m in operating position. In transport position, clearance reaches 0.40 m.
Important: Tire tread lugs must be oriented contrary to the tractor wheels (top of lugs pointing backwards). DO NOT use FATE O tires.

2.7 – TRANSPORTING

Two rims for 9.00 x 20 tires. Driven by two hydraulic cylinders. Hydraulic folding of tongue.
Transport width: 3.40 m (regardless of any attachments)

2.8 – OPENERS

Smooth double discs of 14" or 15" (depending on the planting assembly model).
Articulated shaft with rod and spring to control penetration capacity.

2.9 – DEPTH CONTROL

- **One simple side wheel for depth gauge** (with openers at 17.5 or 21 cm).
- **Two side wheels for depth gauge** (when multiples of 17.5 or 21 cm are used).
- **Single press wheel** (for shafts at 17.5 cm).
- **Wheels with camber angle**, with optional cutaway discs for no-tillage operation (for shafts with 14" discs and when there are NO depth gauge wheels attached).

2.10 – SEED PRESSING

- **Elastic pressing stub** (applied to any model with shafts).
- **Seed press wheel** (for shafts with 15" discs). Rubber tread. Mounted on a single arm support. Variable load spring. Double bearing.

2.11 – CLOSERS

- **Closing wheels with camber angle**

Closing wheel pivots are shifted.
For no-tillage operations, the system is complemented with cutaway discs curving inwards that can be mounted on the inner or outer part of the angled wheels.

- **Simple press wheels**.

For conventional seeding and for shafts with 14" disc and at 17.5 cm distance.

2.12 – NO-TILL

For no-tillage operations, different models of blades can be used: FLUTED, TURBO, WAVY (of various numbers of waves), etc.

The supporting arms of the blades can be:
FIXED - with a single supporting arm.
FLOATING - articulated with recordable load spring and safety fuse pin.

2.13 – FERTILIZATION

Meters are CHEVRON type with brush and bottom that tilts for easy cleaning.
Openers with inclined blade of 16". Depth control spring. Disc cleaning wheel for NO-TILL and CONVENTIONAL operations (in firm soil conditions).
Openers with double flat disc, spring for articulation, and adjustable shank for CONVENTIONAL seeding.

PREPARING THE MACHINE FOR TRANSPORT AND OPERATION

Warnings

Before operating the hydraulic circuit, remove the safety bolts for transport from each of the drive wheels (big ones). Bolts are mounted on the support of each wheel shank (Fig. 1, Item 1).
The bolt in Fig. 1, Item 2 is removed only when wheel "flotation" (permanent contact with soil) is desired in no-till drill.
On the right side, both bolts (Fig. 1, Items 1 & 2) must be installed on the support (Fig. 1, Item 3).
On the left side, only the bolt (Fig. 1, Item 2) must be installed on the support (Fig. 1, Item 3), while the bolt (Item 1) is used to fix the third point of the tongue, when it is folded.

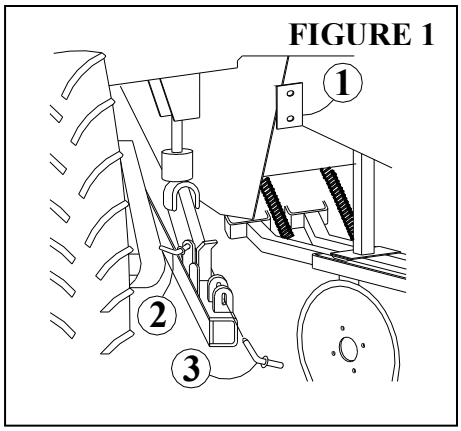


FIGURE 1

Shunt valve. (Figure 2)

* The lever in position No. 1 activates the transport system cylinder circuit and the folding of the tongue.

* The lever in position No. 2 activates the cylinder circuit to lower and raise the drill, the markers cylinder circuit and the leveling cylinder system at the end of the tongue.

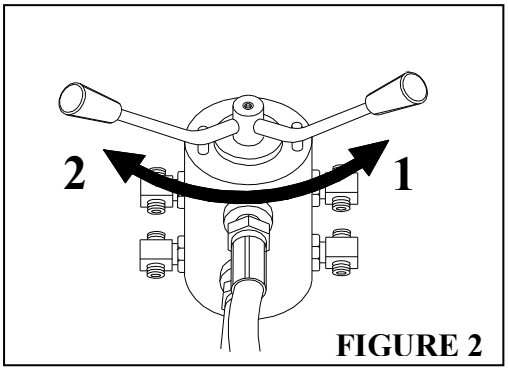


FIGURE 2

Planting assemblies. (Figure 3)

* Before setting the drill in transport position, lower it completely and put detent hooks in each rod of the opener shafts, in position No. 2 (Fig. 3A, Item 1) to obtain more clearance for transport.

* In operating position and before planting, lower the drill completely and put detent hooks in position No. 1 (Fig. 3A, Item 1), so as to lower the assembly and achieve minimum clearance for working, thus increasing the openers flotation range.

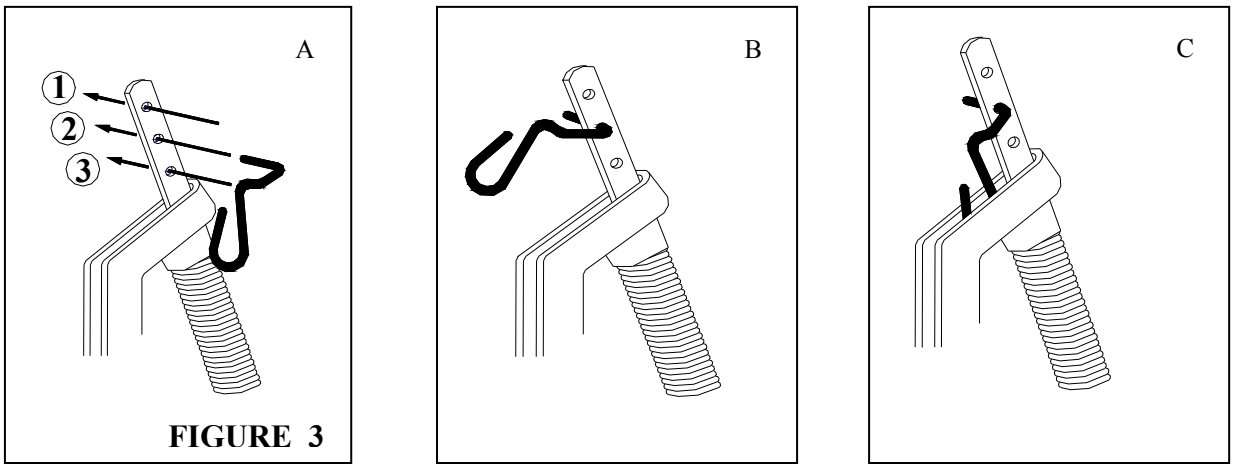


FIGURE 3

1- TRANSPORT POSITION TO OPERATING POSITION

- Remove safety bolts from the drive wheels (Fig. 1, Item 3). For ease of operation, check that the strain tensor that secures the tongue to the drive wheel is not tight (Fig. 4, Item 3).
- Shift valve lever to position No. 2 (Fig. 2).
- Remove the strain tensor that secures the drill tongue to the wheel hub (Fig. 4, Item 3).
- Move the hydraulic system to lower the drive wheels until they touch the soil and monitor that the tongue load is relieved on the drawbar.

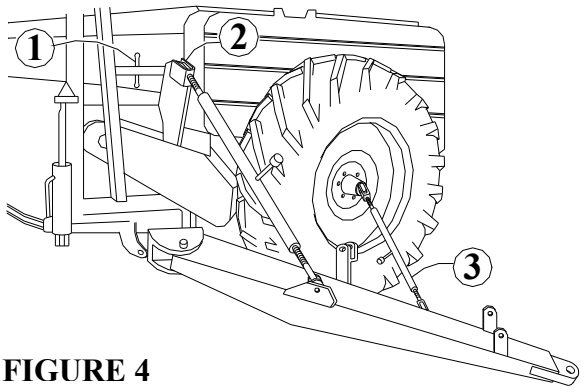
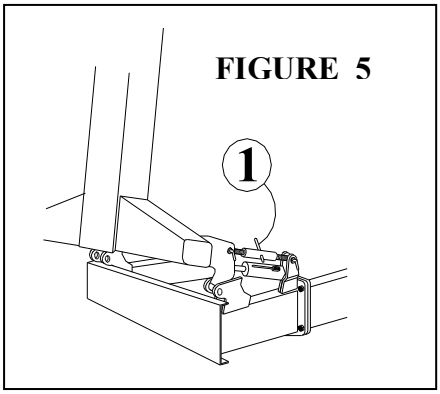


FIGURE 4

- Set the valve lever in position No. 1 (Fig. 2). Relieve the pressure of the hydraulic circuit and disengage hoses.
- Drive the tractor away. Fold the drill tongue.
- Set the tractor in an approximate hitching position to prepare for work.
- Engage hoses again with tractor in operating position.
- Remove the lock with the threaded end (Fig. 5, Item 1) that holds the drill tongue during transport (if it is under strain, work on the hydraulic circuit for ease of operation).
- Engage the hydraulic circuit to lower the tongue. Secure on its base with the eight (8) corresponding fasteners.
- Lower the folding jack located at the end of the tongue. This operation is not necessary if the transport wheels (9.00 x 20) raising mechanism is used to determine the tongue height. In order to do this, set the shunk valve lever in position No. 1 and lower the transport wheels until the tractor's hitch height matches that of the drill.



- Release (move backwards) the locks in each of the cylinders (Fig. 6, Item 1) of the transport wheels. This was already done if you decided to match the drill tongue height with the transport wheels height. Activate hydraulic system and raise wheels completely.
- Set the valve lever in position No. 2.
- Use the hydraulic system to lower the machine.
- Couple the tractor. If both parts do not match, fold the hitch jack (Fig. 7, Item 2), disengage the leveling cylinder (Fig. 7, Item 4), and engage the hydraulic circuit to obtain the desired coupling height.
- Before operating, NEVER FORGET to set the assembly rod hook in operating position (Fig. 3, Item 1).

IMPORTANT: When in operation, the tongue cylinder (Fig. 7, Item 4) must be completely closed. Do not put the lock or any stops. To level the machine, adjust the perforated plate. (Fig. 7, Item 3).

IMPORTANT:
Drive the drill into the ground.
Put detent hook on the assembly rods in position 2 (Fig. 3A) to get clearance for transport.

2- OPERATING POSITION TO TRANSPORT POSITION

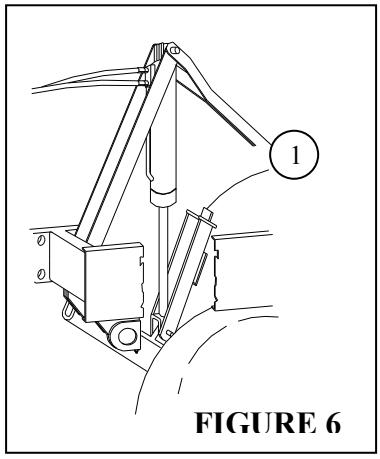


FIGURE 6

- Raise the machine completely.
- Lock the leveling cylinder in the tongue end (Fig. 7, Item 4).
- Shift valve lever to position No. 1.
- Engage the hydraulic circuit until the transport wheels touch the ground and the tongue load is relieved onto the tractor drawbar.
- Disengage the tractor and travel a short distance, taking into account that hoses are still connected.
- Finish raising the drill for transport. Put locks in each wheel in place (Fig. 1, Item 3).
- Remove the fasteners from the drill tongue, activate the hydraulic system and lift tongue. Put the threaded end of the tongue in place (Fig. 5, Item 4).
- Engage the hydraulic control so that the system is loaded on the transport cylinders locks.
- Set the valve lever in position No. 2. Stop the engine and relieve pressure. Disengage hoses. Move the tractor towards the transport tongue.

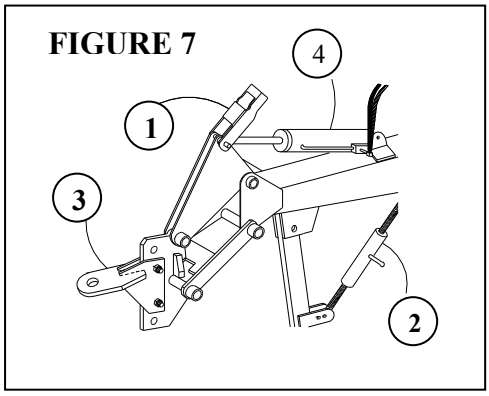


FIGURE 7

- Unfold the transport tongue; couple brace or third point (Fig. 4, Item 2) in the upper part, in the same place where the other support brace is (Fig. 4, Item 1). With the threaded end in the third point, reach the tractor coupling height. Couple it.
- Attach hoses. Raise large (operation) wheels entirely and complete the travel distance. Lock the wheel supports with their corresponding bolts (Fig. 1, Item 3).
- Shift valve lever to position No. 1; stop the engine and relieve pressure. Disengage hoses.
- With the threaded end in the third point (Fig. 7, Item 3) level the machine for longitudinal transport. The tongue load on the drawbar can be varied by engaging the third point. If possible, slightly load it towards the front.
- Couple the strain tensor that connects the tongue to the wheel hub coupling (Fig. 4, Item 3).

NOTE: If you park the drill in transport position and wish to uncouple the tractor, lower the hitch jack (located in the front toolholder bar) to maintain the transport tongue height and couple it again later.

3- DRAWBAR TO TRACTOR AND LEVELING

When the drill needs to be in operation position (driven into the ground), it must be horizontal regarding the ground. To achieve this position, raise or lower the plate located at the tongue end (Fig. 7, Item 3) or reverse it if necessary.

DRILL PREPARATION AND SETUP

1- OPENERS PENETRATION CAPACITY

The penetration capacity of openers is determined by a double spring system (Fig. 8, Items 1 & 2) that allows two different load possibilities on the openers.
Fitting the U-part (Fig. 8, Item 4) will activate the outer spring (Fig. 8, Item 2), which provides the greatest penetration capacity.
For conventional seeding, load can be reduced by removing the U-part (Fig. 8, Item 4), so only the inner spring will operate on the opener (Fig. 8, Item 1).

IMPORTANT: For conventional seeding, the openers load should be controlled by limiting the closure of the cylinder rod through its threaded end (Fig. 9, Item 1) or by placing stop elements. If this step is skipped, plugging may occur, especially if depth gauge wheels are attached.

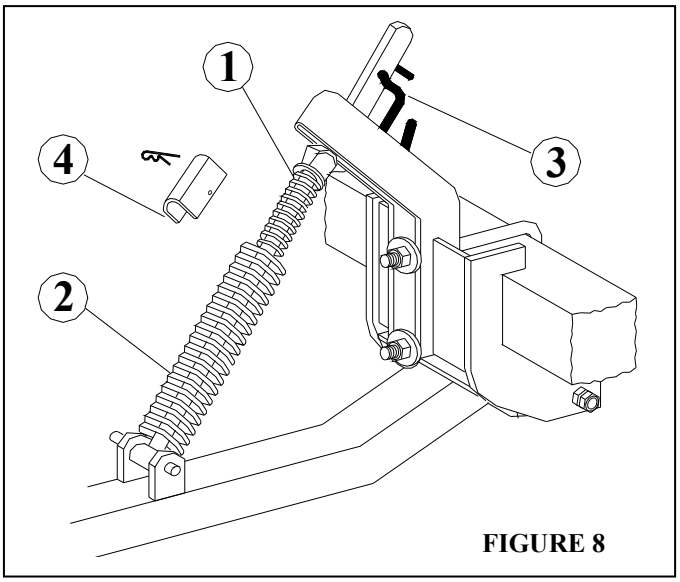


FIGURE 8

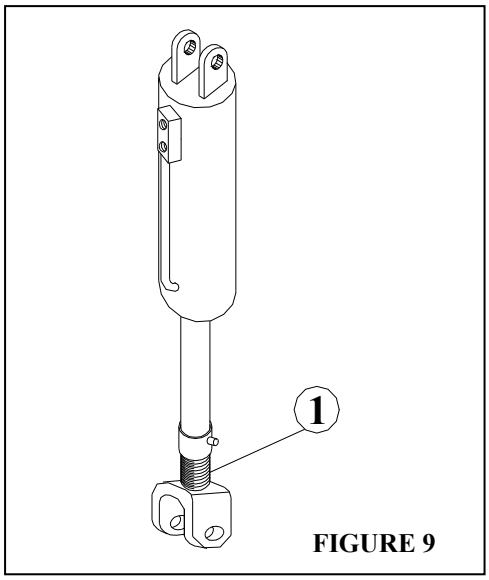


FIGURE 9

2- ADJUSTING PLANTING ASSEMBLIES

The mechanism for raising and lowering the drill uses the two (2) hydraulic cylinders mounted on each side of the wheels.
The detent hook (Fig.7) in each rod of the opener shafts can adopt three different positions, as shown in Figure **3 A.**

- **Position 1 -** detent hook for **OPERATING** position.
- **Position 2 -** detent hook for **TRANSPORT** position.
- **Position 3 -** detent hook to **CANCEL** the operation of planting assemblies when the distances used are multiples of regular row spacing.

For the first two positions (1 & 2), the drill should be completely driven into the ground and in a firm place to free the hook and then change its position.
For the third position (3), the planting assembly should be lifted from behind. The help of another person is needed for this operation.

3- ADJUSTING SEEDING DEPTH

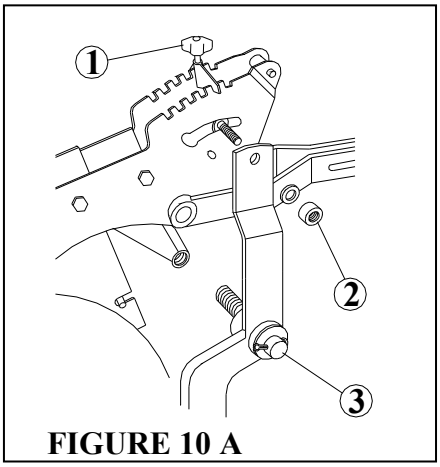


FIGURE 10 A

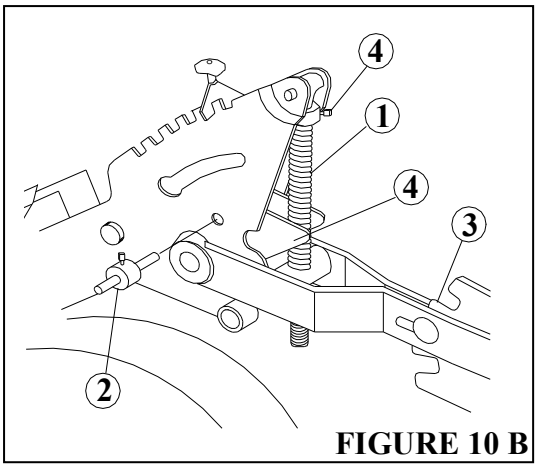


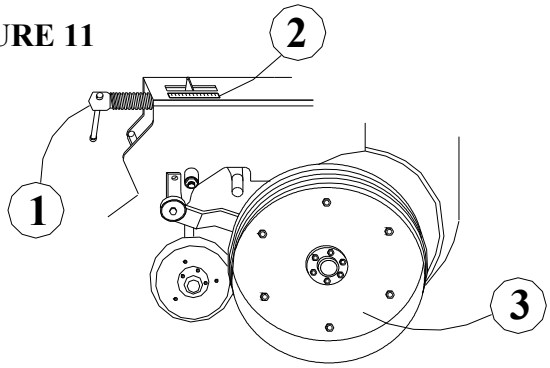
FIGURE 10 B

SIDE WHEELS ATTACHED TO SEEDER DISCS:

For planting assemblies with 14" discs:
When these wheels are used, the closing wheels, whether angled or single pressing wheels, are articulated by the spring (Fig. 10B, Item 1).
The depth control will be performed by the attached wheels, and their position is controlled by the knob in the serrated section (Fig. 10 A, Item 1). Before adjusting the wheels' position, the fastening bolt of the mechanism must be loosened (Fig. 10 A, Item 2); the bolt will again be fastened once the desired position is achieved. If the knob (Fig. 10 A, Item 1) is moved backwards, the seeding depth increases. If it is moved forward, the seeding depth is reduced.

For planting assemblies with 15" discs:

FIGURE 11



The position of the attached depth gauge wheel (Fig. 11, Item 3) is controlled by the threaded end (Fig. 11, Item 1). The scale ruler (Fig. 11, Item 2) is used as a reference to set all planting assemblies at the same depth.

Attached wheels are set:

- one per seed row (spacing 21 cm)
- two per seed row (for multiples of 21 cm)

The supporting arms of the wheels are "right" or "left" depending on their application. Washers are used to adjust the rubber edge to the face of the opener disc.

CAUTION: The proper adjustment of these wheels is highly important. If they are too tight against the opener discs, the operation of the assembly could be stopped. On the contrary, if the distance from the discs is too wide, soil or stubble will accumulate and, consequently, jamming or hairspinning will occur.

A) SIMPLE ANGLED PRESS OR CLOSING WHEELS: Only applied to planting assemblies with 14" discs. For these wheels to perform as depth gauge wheels, when no attached wheels are being used (or if they were removed for some reason), the selector knob (Fig. 10 A, Item 1) must be connected to the parts (Fig. 10 B, Item 4) with pin and bushing (Fig. 10 B, Item 2).

IMPORTANT: NEVER OPERATE THE TWO DEPTH CONTROLLING MECHANISMS AT THE SAME TIME, SINCE THEY SELECT SEEDING DEPTH INVERSELY; THAT IS TO SAY, IF ATTACHED WHEELS ARE BEING USED, NO CLOSING WHEELS MUST BE USED TO CONTROL DEPTH, OR VICEVERSA.

4- ADJUSTING MARKERS

A) DISTANCE IN CENTIMETERS

Markers will be located in such a way that the guide furrow, indicated by the marker disc, matches the tractor center on the next field passing.
Marker distance can be calculated as follows.

- Distance between the last disc opener and the guide furrow **"A"** will be equal to:

$$\frac{(\text{No. of furrows} - 1) \times \text{furrow spacing}}{2} + \text{furrow spacing}$$

$$\frac{(25 \text{ furrows} - 1) \times 17.5 \text{ cm}}{2} + 17.5 \text{ cm} = \mathbf{227.5\ cm}$$

- Distance between the center of the drill and the guide furrow **"B"** will be equal to:

the number of planting assemblies x furrow spacing

25 furrows x 17.5 cm = **437.5 cm**

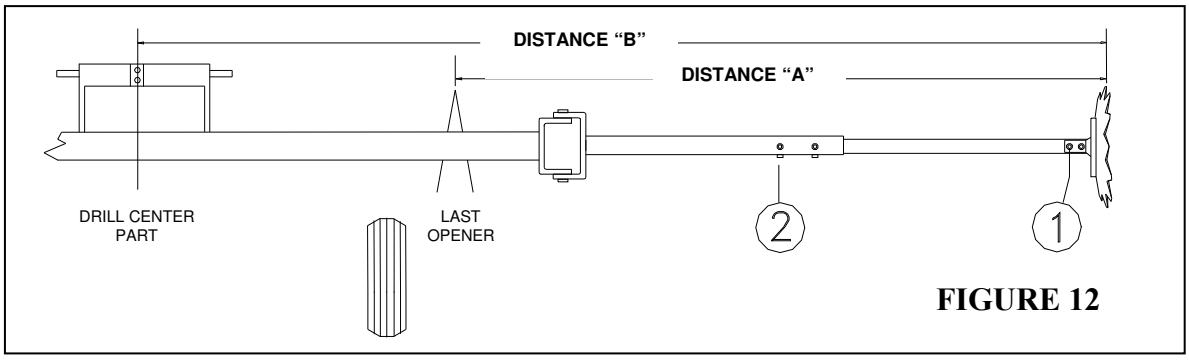


FIGURE 12

Nº of FURROWS	25	13	9	7	21	11	7
FURROW SPACING (cm)	17.5	35	52.5	70	21	42	63
DIST. "A" (cm)	227.5	245	262.5	280	231	252	252
DIST. "B" (cm)	437.5	455	472.5	490	441	462	441

To modify the distance of marker discs, do the following:

- Loosen the bolts on the marker arm (Fig.12, Item 2).
- Measure the distance from the last opener (distance "A") or from the drill center (distance "B").
- Set the marker to the measured distance.
- Tighten the setscrews.
- Readjust, if necessary, after some field tractor passings.

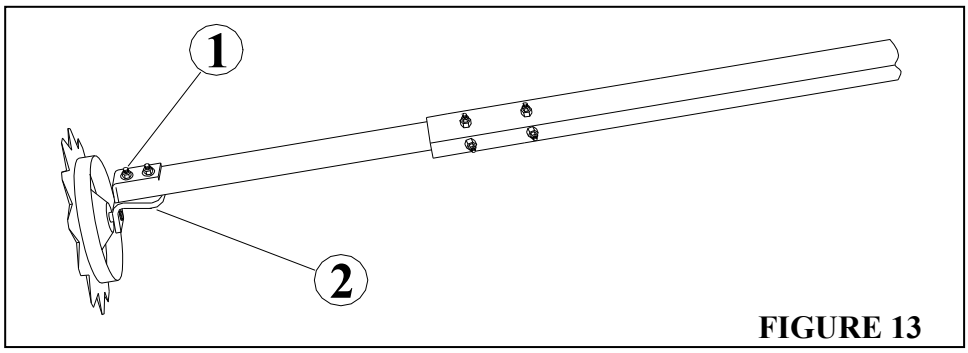


FIGURE 13

B) ANGLE (BETWEEN THE OPENER DISC AND THE GROUND)

The disc angle can be modified to increase or decrease the marking down pressure.
Loosen the bolts (Fig.13, Item1).
Give desired angle and tighten again.

C) SPEED (WHEN RAISING AND LOWERING THE MARKER)

The markers' folding speed can be adjusted.
If you are not satisfied with the folding speed, contact GHERARDI Customer Service Department.

5- OBTAINING VARIABLE DISTANCE

Seeding can be performed in multiples of the distances set for the drills (i. e., 17.5 cm or 21 cm).

SETTING AT 17.5 CM				SETTING AT 21 CM		
17,5	35	52,5	70	21	42	63

To obtain distance multiples, the shafts detent hook (Fig. 3) will need to be changed to position number 3 (Fig. 3 A).
To do this, the locking stop on the outer spring must be removed (Fig. 8, Item 4) and the planting assembly must be lifted from behind until the corresponding hole for the hook becomes visible.
SEE PAGE 13, SECTION 2 - ADJUSTING PLANTING ASSEMBLIES

6- ADJUSTING SEEDING POPULATION

Obtaining seeding population:

The charts on the machine provide a guide about the seeding population (or fertilizer rate) the drill will apply depending on the adjustments performed. Differences in seed (or fertilizer) types, level of humidity, soil preparation, etc. can account for variations in the values shown. Therefore, it is advisable to perform a check on the field conditions, proceeding as follows:

- √ Select the gear and/or the adjustment mark indicated in the corresponding charts for the desired population.
- √ Travel 100 m (machine driven into the ground) on the ground to cultivate. Also, with the drill standing still, raise the wheel (by setting the drill for longitudinal transport), and make it turn 27 times for 12.4 x 28 tires.
- √ Collect seeds (or fertilizer) from at least 5 meters.
- √ Weigh and establish the average for one meter.
- √ Multiply the average weight (in kg) that a meter delivers in 100 m of traveling distance (or 27 wheel turns) by the number of rows in one hectare, corresponding to the row spacing that will be cultivated according to the following chart:

DISTANCE	NO. OF ROWS / HA
17.5 cm	571
21 cm	476
35 cm	286
42 cm	238
52.5 cm	190
63 cm	159
70 cm	143

The result will be the KG / HA that the drill is seeding.

Example: If in a 100 m distance, out of 5 meters, 560 g (or 0.560 kg) were obtained. Seeding population will be: $\frac{0.560 \text{ kg}}{5} = 0.120$ kg per meter

0.120 Kg x 571 = 68.5 Kg / Ha with 17.5 cm of row spacing.
If rows are spaced 35 cm apart, the seeding population will be:
0.120 Kg x 286 = 34.3 Kg / Ha with a 35 cm in row spacing.

IMPORTANT: CHARTS ON THE MACHINE ARE ESTIMATES FOR ROWS SPACED 17.5 CM OR 21 CM APART (EXCEPT IN THE FERTILIZER CHARTS, WHERE ROW SPACING IS SPECIFIED FOR EACH FERTILIZER RATE). WHEN INTERMEDIATE ROWS ARE USED, VALUES SHOWN IN THE CHART MUST BE DIVIDED.

For drills set at 17.5 cm

For 13 rows = divide the indicated value by 1.9.
For 9 rows = divide the indicated value by 2.7.
For 7 rows = divide the indicated value by 3.5.

For drills set at 21 cm
For 11 rows = divide the chart value by 1.9.
For 7 rows = divide the chart value by 2.7.

You will then be able to know the number of seeds the machine is delivering.
The inverse operation can also be performed, that is, multiplying the desired kg/ha by the factors indicated above, and the result can be matched to the corresponding value on the reference chart.

For example: for 70 kg/ha of soybean, in furrows spaced at 35 cm (13 rows), the operation will be:
70 x 2 = 140. The result of 140 Kg for soybean in the position shown in the chart will mean the 70 Kg/Ha planted in alternate rows (13 rows at 35 cm distance).

IMPORTANT:

Speed-change gearbox: To shift gears (different positions of the levers), you should do the following:
1 – The machine must be off the ground.
2 – Turn the gearbox external steering wheel forwards and backwards until the levers can be shifted to the intended position. The wheel movement allows the geartooth fitting, thus facilitating side movement.
3 – Turn the steering wheel forward to allow the internal gear engagement.

Gearbox manufacturer can be reached at:
GARRO FABRIL S.A.
Colón y Ruta 8 - C.C. 350
2600 Venado Tuerto (SF)
Tel. +54 3462 422694 / 427705 / 427698 - Fax +54 3462 427718

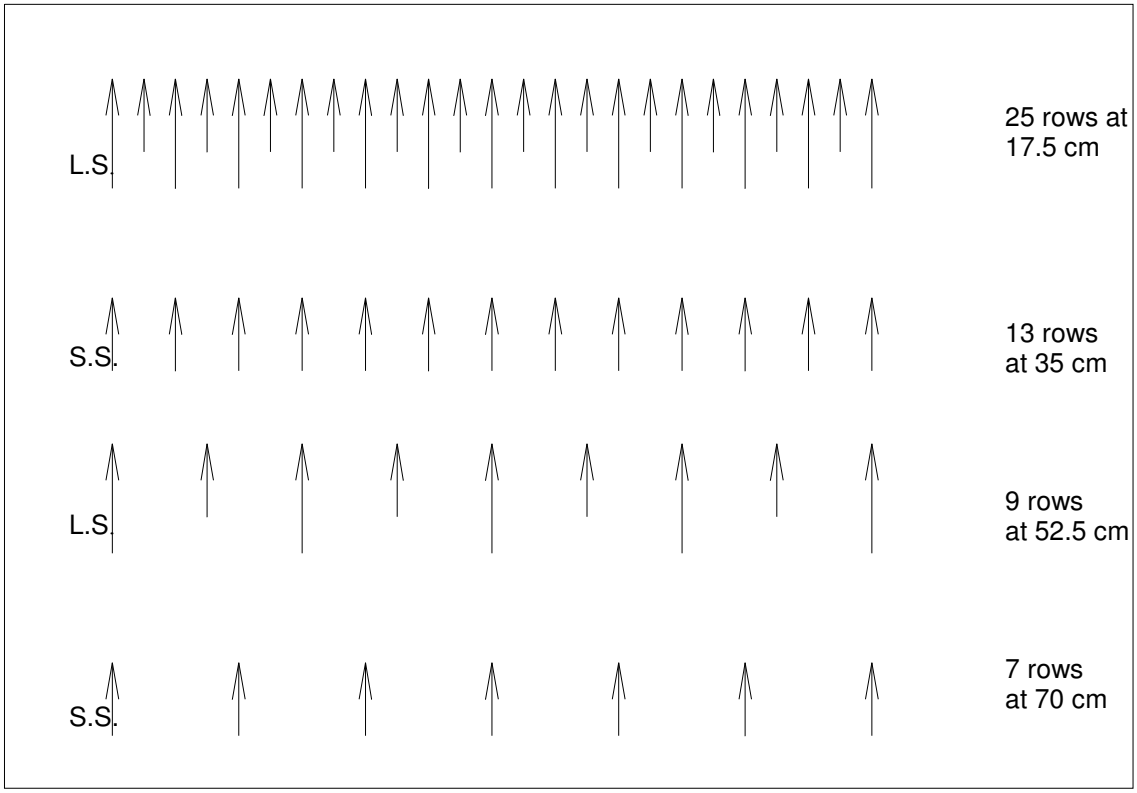
NOTE: It would be necessary to exert certain pressure to move the levers. Turn the steering wheel forward and backwards as many times as necessary to achieve the movement of the above mentioned levers.

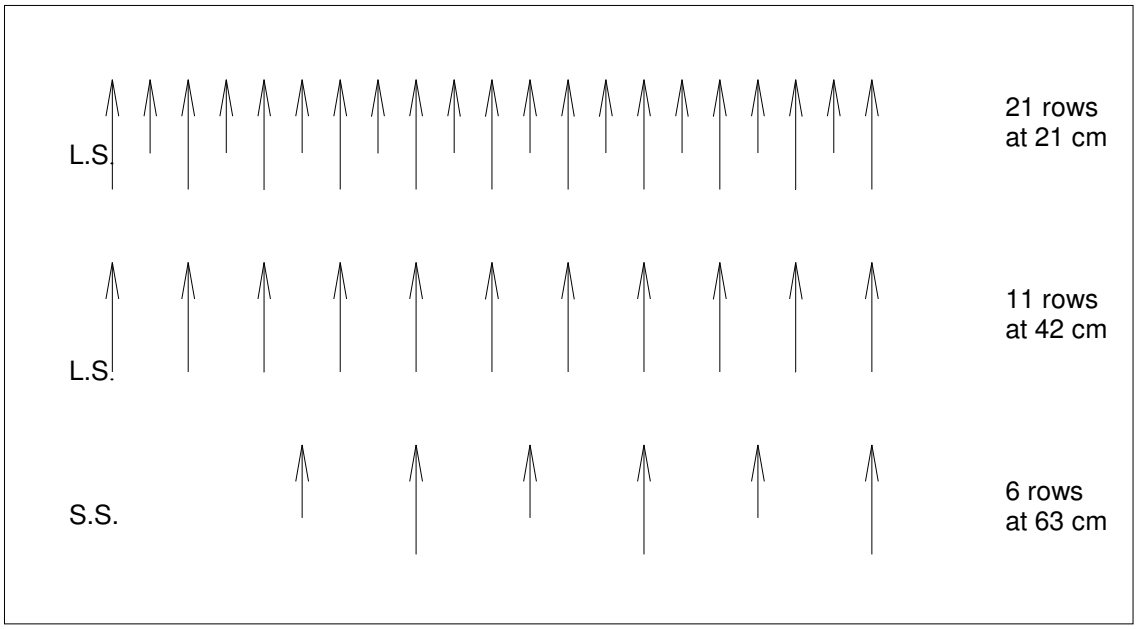
ROWS TO USE ACCORDING TO THE SEEDING SPACING

When planting spacing is in multiples, short or long shafts can be used indistinctly. It is advisable to alternate their use in each season, so as to get an even wear of the planting assemblies' active elements.

In seedings at 35, 70, and 42 cm, only one line of meters is used. In such cases, an internal separator can be placed within the box to avoid seeds from running into the meter area that is not being used.

S. S.: Short Shaft
L. S: Long Shaft


L.S.
25 rows at
17.5 cm
S.S.
13 rows
at 35 cm
L.S.
9 rows
at 52.5 cm
S.S.
7 rows
at 70 cm


L.S.
21 rows
at 21 cm
L.S.
11 rows
at 42 cm
S.S.
6 rows
at 63 cm

SOYBEAN SEEDING

In the seeding charts, population is expressed in Kg/Ha. If the number of seeds in a linear meter is to be determined, it is necessary to know the weight of 1000 seeds of the kind of crop to be planted.

The number can be estimated as follows:

Weight of 1000 seeds: 142 g
Data from the chart (rows at 17.5 cm) for a given position: 80 kg per ha (i. e., 80,000 g)

80,000 grams = 563,380 seeds per ha with row spacing of 17.5 cm.
142 grams (571 rows per ha)

563,380 seeds = 986 seeds per 100-meter-long rows
571 seeds

986 seeds = 9.8 seeds per meter
100 m

The reverse estimation, that is, beginning with the number of desired seeds, will be:
30 seeds x meter x 100 m = 3.000 seeds every 100 m
3000 seeds x 571 (No. of rows x ha. at 17.5 cm as calculated in the chart)=1,713,000 seeds x ha.

If 1000 seeds weigh 142 grams, the result will be:

1,713,000 seeds x 142 grams = 242 Kg/Ha.
1000

Where the chart shows 242 Kg/Ha, the application rate will approximately be 30 seeds per meter, for any row spacing.
In order to get an estimate, and to avoid doing the calculation, the number of seeds per meter corresponding to the Kg/Ha are shown below, for 1000 seeds weighing 150 grams.

Number of seeds per meter and Kg/Ha that correspond in the chart (17.5 cm) to 1000 seeds = 150 grams

Intended No. of seeds	Kg./Ha. that the table should indicate (or the nearest)
18 seeds per m	156 Kg/Ha
21 seeds per m	134 Kg/Ha
23 seeds per m	199 Kg/Ha
25 seeds per m	216 Kg/Ha
27 seeds per m	235 Kg/Ha
30 seeds per m	254 Kg/Ha
32 seeds per m	276 Kg/Ha
35 seeds per m	298 Kg/Ha
38 seeds per m	324 Kg/Ha

NO-TILL

NOTE: No-till farming is a whole system, and its success or failure has a close relationship with several contributing factors, for example: previous crop, field area (leveling, elimination of previous ruts, etc.), stubble management (straw and chaff spreading), weed control, crop rotation, etc.

The planting **direction** should always be diagonal to the harvesting direction (harvesting must be done "end to end" and not in "circles") in order to achieve a better distribution of stubble and residue from harvesting.

The **speed** of the seeding operation will be lower than in the conventional tillage. A speed of 6 to 7 km/hr is advisable in field areas with too much stubble and an uneven surface.
Working while the stubble is wet (either because of dew or rain) should be avoided.

BLADES FOR NO-TILL

To ensure penetration of opener discs and the accurate placement of seeds, the adjustment of these blades is highly important.

ALIGNMENT: The blade must cut in perfect match with the line the opener discs are marking. To check this, the machine must be set in operation on the ground and should be driven forward a few meters. If the cutting lines are offset, the setscrews will have to be loosened from the blade supports and the shank turned (Fig. 14, Item 2) until coincidence in the lines is achieved.
If the blade is cutting out of line, the opener discs may deviate and, in turn, the whole operation will be negatively affected. There can be an overload on discs, frames and wheels; faulty penetration of seeding implements; inaccurate placement of seeds and/or fertilizers, etc.

DEPTH: The blades must cut approximately 2 cm deeper than the seeding depth. To change depth, the setscrews on the supports must be loosened and, once the desired depth is achieved, tightened again. ***Warning:*** On a very uneven surface, it might be necessary to increase the cutting blades working depth.

IMPORTANT: The blades cut should never be too deep, since excessive depth can affect the proper blade operation, as well as seed placement depth and uniformity, and the future plant growth.

BLADE TYPES There are two types of blades:
✓ **Fixed (Fig. 14) -** These blades have a supporting arm with no swivel, therefore, the load transfers directly on the cutting blade.
✓ **Floating (Fig. 15) -** These blades have a supporting arm with a spring that allows swivelling. They also have a fuse pin to preserve the blade integrity when encountering obstacles. They are mainly used in field areas with many obstacles.
Both types of blades have a shaft that attaches them to the frame (Fig. 14, Item 2) and are mounted on a single supporting arm (Fig. 15, Item 2).

FIGURE 14

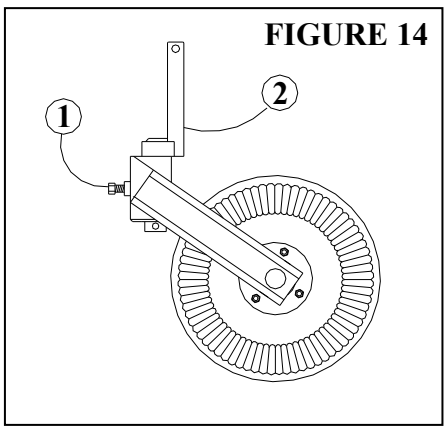
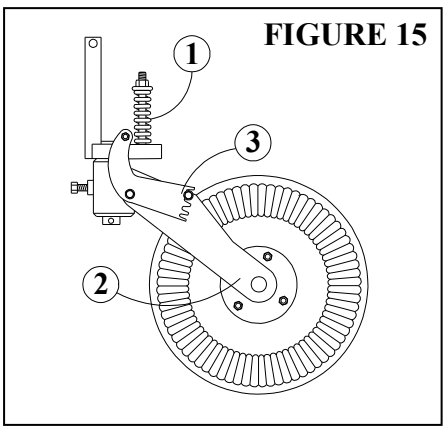


FIGURE 15



FERTILIZING

In SIMPLE fertilization in the seeding line, a fertilizer compartment is located next to the seed box.
In simple fertilization in side seeding line, a dedicated fertilizing compartment is located ahead of the drill.
In DOUBLE fertilization, two fertilizer compartments must be mounted.
CHEVRON type meters with cleaning brush and tilting bottom.
Individual variators for each type of fertilization.

FERTILIZATION POSSIBILITIES

A) ONE LINE OF METERS:

✓ **Placement on seed row -** Used for fertilizers of the STARTER type. A compartment located next to the seed box is used to direct the fertilizer to the opener discs ahead of and slightly under the seeds.

Warning: Special care should be taken when applying nitrogen fertilizers in the seed row, mainly UREA. Contact your provider to check the correct rate to avoid phitotoxicity.

FIGURE 16

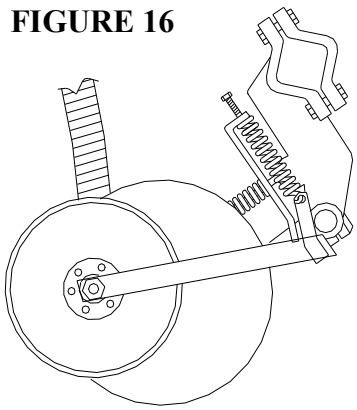
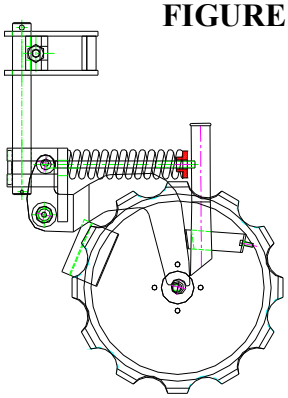


FIGURE 17



✓ **Side placement -** Performed as BASE fertilizing. A box is used at the front of the drill on the fertilizer meter line at the side of the seeding line.
These dispensers are individual implements made up of a blade inclined toward the travel direction and with attached disc-cleaning wheel (Fig. 16) in no-tilling operation. Spring to modify down pressure.

Side fertilization can also be achieved with individual dispensers made up of 2 concentric discs, i.e., a 17" sprocket and a 15" smooth disc. (Fig.17). Trip spring and articulation.

B) TWO LINES OF METERS:

Simultaneous placement of fertilizer on the seed row and at the side.

ADJUSTING THE APPLICATION RATE

The fertilizer application rate chart (Page 29) shows the Kg/Ha. to be applied to the different types of material and for every possible gear combination.
The chart lists different types of fertilizers with their corresponding rate for each row spacing allowed by the machine.
Listed data are estimated for 27 wheel turns (12.4 x 28) in 100 m of operation.
Variations in the fertilizer's physical conditions (humidity, grain size distribution, etc.) may cause variations in the indicated rates.
The chart includes a drawing of the speed variators (right and left).

GEARBOX:
To shift gears (different positions of the levers), you should do the following:

1- The machine must be off the ground.
2- Turn the external steering wheel of the gearbox forwards-backwards until the levers can be shifted to the intended position. The wheel movement allows the geartooth fitting, thus facilitating side movement.
3- Turn the steering wheel forward to allow the internal engagement of gear.

DETERMINING THE APPLICATION RATE:

1) Uncouple at least 3 fertilizer hoses.
2) Travel 100 m or turn the drive wheel 27 times.
3) Gather the fertilizer applied by the meters.
4) Weigh and calculate average of fertilizer applied by the meters.
5) Multiply the average by the number of furrows in a hectare.
   571 for 17.5 cm spacing, **476** for 21 cm spacing, **286** for 35 cm spacing or **238** for 42 cm spacing.

Example:

Fertilizer: DIAMMONIUM PHOSPHATE
Row spacing: 21 cm.
Desired rate: 50 kg/ha

Amount gathered from 3 meters: 315 g / 3 meters = 105 g x furrow.
0.105 kg x 476 (furrows in 1 ha = at 21 cm spacing)

50 kg/ha.

PLANTING PASTURES

The procedure for obtaining the desired population is described above and is the same as for fertilizers and seeds.

PLACEMENT OF SEEDS - There are two possibilities for placing the seeds:

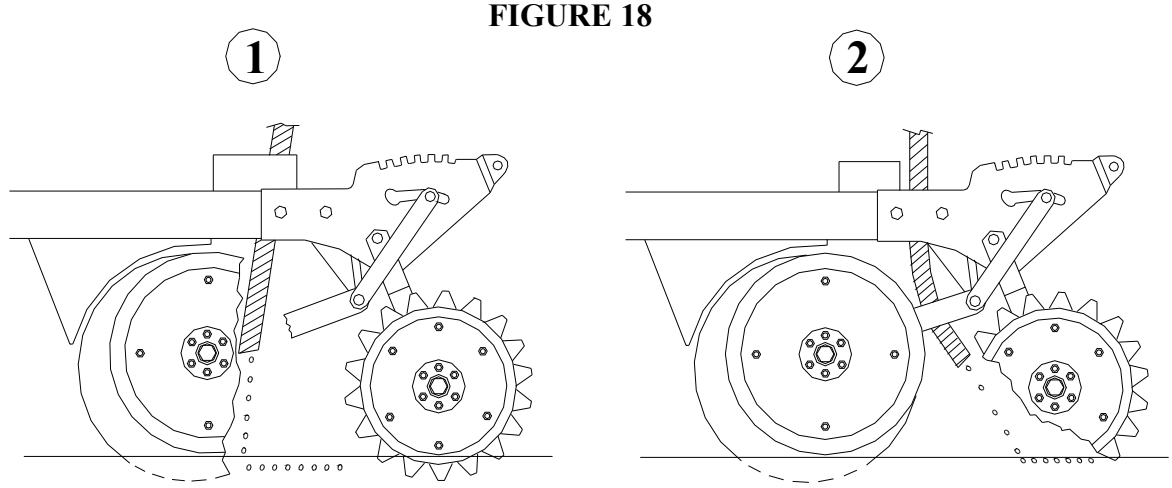
1- **Towards the coulters/openers -** Two straight seed tubes should be used (Fig. 18, Item 1) in the 14"-disc planting assemblies or seed tube adapters (Fig. 19, Item 1) in 15"-disc planting assemblies.

2- **Towards the closing wheels -** The curved seed tubes should be used (Fig. 18, Item 2) in 14"-disc planting assemblies, or adapters (Fig. 19, Items 2 & 3).

In the first case, more seed depth can be achieved; in the second case, the seed is only covered by the soil provided by the closing system (so seed depth cannot be improved).

NOTE: The soil conditions and the type of work to be carried out should be assessed to determine the kind of tube required to achieve the desired goals.

FIGURE 18



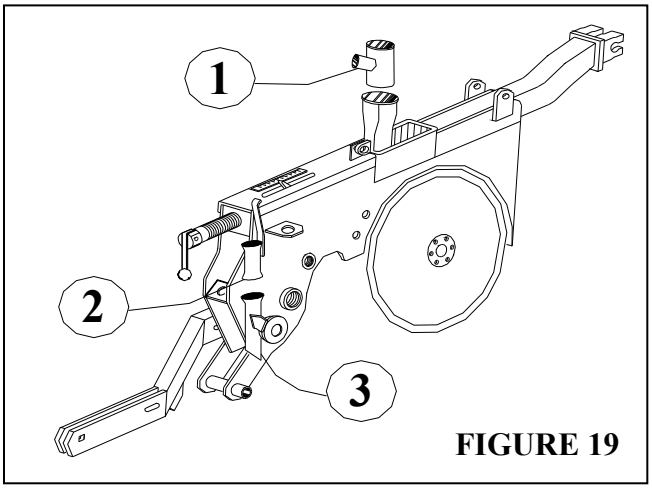


FIGURE 19

GHERARDI G-100 DRILL

SEEDING POPULATION CHART FOR 54-GEAR GEARBOX

Kgs.x Ha. estimated values for 55 turns of wheel (12.4x28) in 100m. Row spacing 17.5 cm.
The gear number for each seeding population determines the position of the gearbox lever, as per the table located on it.

17,5

GEAR NUMBER

CROP	FEEDER NOZZLE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Wheat	Big	23	25	27	30	32	35	38	41	45	50	53	54	57	59	61	64	67	69	73	75	79	82	85	88	92	96	100
Oat	Big								25	27	30	32	33	34	36	37	39	41	42	44	46	48	50	52	54	56	58	61
Barley	Big				25	27	29	32	34	38	42	45	46	48	50	52	54	56	58	62	63	66	69	72	74	77	81	84
Rye	Big			24	27	29	32	34	37	40	45	48	49	51	53	55	58	61	62	66	68	71	74	77	79	83	87	90
Flax	Big							30	32	35	39	41	42	44	46	48	50	52	54	57	59	62	64	66	69	72	75	78
Pea	Big																49	51	53	56	58	60	63	65	67	70	74	77
Lentil	Big										52	55	56	59	61	63	66	70	72	76	78	82	85	88	91	96	100	104
Vetch	Big	22	24	26	29	31	34	37	40	44	49	52	53	56	58	60	63	66	68	71	73	77	80	83	86	90	94	96
Soy bean	Big																											
Couch grass	Big	6,5	7,5	8	9	9,5	10	11	12	13	15	15,5	16	17	17,5	18	19	20	20,5	21	22	23	24	25	26	27	28	29
Canary grass	Small																		19	20	21	22	23	24	25	26	27	29
Millet	Small															21	22	23	24	26	27	28	29	30	31	32	34	35
Chicory	Small	5	5,5	6	6,5	7	8	8,5	9	10	11	12	12,5	13	13,5	14	14,5	15	15,5	16,5	17	18	18,5	19	20	21	22	23
Fescue	Small	2,4	2,6	2,8	3,2	3,4	3,7	4	4,3	4,8	5,3	5,6	5,7	6	6,3	6,5	6,8	7	7,3	7,7	7,9	8,4	8,7	9	9,3	9,7	10	10,6
R.Grass	Small	2	2,2	2,4	2,7	2,9	3,1	3,4	3,7	4	4,5	4,8	4,9	5,2	5,4	5,6	5,8	6	6,3	6,6	6,8	7,2	7,4	7,7	8	8,4	8,7	9
Orchard grass	Small				2,4	2,6	2,8	3	3,3	3,6	4	4,3	4,4	4,6	4,8	4,9	5	5,4	5,6	5,9	6	6,4	6,6	6,8	7	7,4	7,7	8
Phalaris	Small	7	7,6	8,2	9	9,7	10,6	11,5	12,4	13,6	15,2	16	16,4	17,3	18	18,5	19,4	20,4	21	22	22,7	24	25	26	26,7	27,9	29	30,4
Sorghum	Small		7,7	8,4	9	10	11	12	13	14	16	16,5	17	18	18,5	19	20	21	22	22,5	23	25	25,5	26	27	28	30	31

GEAR NUMBER

CROP	FEEDER NOZZLE	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
Wheat	Big	108	113	116	122	126	132	137	144	149	156	161	169	175	182	189	198											
Oat	Big	66	69	71	75	77	81	84	88	91	95	98	103	107	111	115	121	125	131	147	160	173	188	204	220	239	259	280
Barley	Big	91	95	98	103	106	111	115	121	125	132	136	142	148	154	167												
Rye	Big	93	103	105	110	114	119	124	130	135																		
Flax	Big	84	88	91	95	98	103	107	113	116	73	106	132	137	142	148	155											
Pea	Big	83	87	89	94	97	101	105	110	114	120	123	130	134	140	145	152	157	164	185	200							
Lentil	Big	112	117	120	127	131	137	142	150	155	162	167	176	182	189	196	206	213										
Vetch	Big																											
Soy bean	Big	82	86	88	93	96	100	104	110	113	119	123	129	133	139	144	151	156	163	134	199	216	235	254	276	298	324	350
Crested Wheatgrass	Big																											
Canary grass	Small	31	32	33	34	36	37	39	40	42	43	44	46	48	49	51	54	56	58	66	71	77	84	91				
Millet	Small	38	40	41	43	44	46	48	51	52	55	57	60	62	64	67	70	72	75	85								
Chicory	Small	25	26																									
Fescue	Small	12	12	12	13	13	14	15	15	15,8	17	17	17,9	19	19,3	20	21	22	23	25,5								
R.Grass	Small	9,8	10	16	11	12	12	13	13	13,5	14	14,5	15,5	16	16,5	17	18	19	20	22	24	25,5						
Orchard grass	Small	8,7	9	9,4	10	10	11	11	12	12	13	13	13,6	14	14,7	15	16	17	17	19,5	21	22,8	25	27				
Phalaris	Small	33																										
Sorghum	Small	33	35	36	38	39	41	42	44	46	48	50	52	54	56	58	61											

GHERARDI G-100 DRILL

SEEDING POPULATION CHART FOR 54-GEAR GEARBOX

Kgs.x Ha. estimates values for 55 turns of wheel (12,4 x 28) in 100 m. Row spacing 21 cm.

The gear number for each seeding population determines the position of the gaerbox lever, as per the table located on it.

21

GEAR NUMBER

CROP	FEEDER NOZZLE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Wheat	Big	19	21	22	25	27	29	32	34	37	42	44	45	47	49	51	53	56	57	61	62	66	68	71	73	77	80	83
Oat	Big								21	22	25	27	27,5	28	30	31	32	34	35	37	38	40	42	43	45	47	48	51
Barley	Big				21	22	24	27	28	32	35	37	38	40	42	43	45	47	48	52	52,5	55	57	60	62	64	67	70
Rye	Big			20	22,5	24	27	28	31	33	37	40	41	42	44	46	48	51	52	55	57	59	62	64	66	69	72	75
Flax	Big							25	27	29	32	34	35	37	38	40	42	43	45	47	49	52	53	55	57	60	62	65
Pea	Big																41	42	44	47	48	52	52,5	54	56	58	62	64
Lentil	Big										43	46	47	49	51	52	55	58	60	63	65	68	71	73	76	80	83	87
Vetch	Big	18	20	22	24	26	28	31	33	37	41	43	44	47	48	50	52	55	57	59	61	64	67	69	72	75	78	82
Soy bean	Big																											
Couch grass	Big	5,4	6,2	6,7	7,5	8	8,3	9,2	10	11	12,5	13	13,3	14	14,6	15	16	16,7	17	17,5	18	19	20	21	22	22,5	23	24
Canary grass	Small																		16	16,7	17,5	18	19	20	21	22	22,5	24
Millet	Small															17,5	18	19	20	22	22,5	23	24	25	26	27	28	29
Chicory	Small	4,2	4,6	5	5,4	5,8	6,7	7	7,5	8,3	9	10	10,4	10,8	11	11,7	12	12,5	13	13,7	14	15	15,4	16	17	17,5	18	19
Fescue	Small	2	2,2	2,3	2,7	2,8	3	3,3	3,6	4	4,4	4,7	4,7	5	5,2	5,4	5,7	5,8	6	6,4	6,6	7	7,2	7,5	7,7	8	8,3	9
R. Grass	Small	1,7	1,8	2	2,2	2,4	2,6	2,8	3,1	3,3	3,7	4	4,1	4,3	4,5	4,7	4,8	5	5,2	5,5	5,7	6,0	6,2	6,4	6,7	7	7,2	7,5
Orchard grass	Small				2	2,2	2,3	2,5	2,7	3	3,3	3,6	3,7	3,8	4	4,1	4,2	4,5	4,7	4,9	5	5,3	5,5	5,7	5,8	6,2	6,4	6,7
Phalaris	Small	6	6,3	6,8	7	8	9	9,6	10,3	11	12,7	13	13,7	14,4	15	15,4	16	17	17,5	18	19	20	21	21,7	22	23	24	25
Sorghum	Small		6,4	7	7,7	8,3	9	10	11	12	13	13,7	14	15	15,4	16	17	17,5	18	18,7	19	21	21,2	22	22,5	23	25	26

GEAR NUMBER

CROP	FEEDER NOZZLE	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
Wheat	Big	90	94	97	102	105	110	114	120	124	130	134	141	146	152	157	165											
Oat	Big	55	57	59	62	64	67	70	73	76	79	82	86	89	92	96	101	104	109	122	133	144	157	170	183	199	216	233
Barley	Big	76	79	82	86	88	92	96	101	104	110	113	118	123	128	139												
Rye	Big	77	86	87	92	95	99	103	108	112																		
Flax	Big	70	73	76	79	82	86	89	94	97	102	105	110	114	118	123	129											
Pea	Big	69	72	74	78	81	84	87	92	95	100	102	108	112	117	121	127	131	137	154	167							
Lentil	Big	93	97	100	106	109	114	118	125	129	135	139	147	152	157	163	172	177										
Vetch	Big																											
Soy bean	Big	68	72	73	77	80	83	87	92	94	99	102	107	111	116	120	126	130	136	153	166	180	196	212	230	248	270	292
Crested Wheatgrass	Big																											
Canary grass	Small	26	27	28	28	30	31	32	33	35	36	37	38	40	41	42	45	47	48	55	59	64	70	76				
Millet	Small	32	33	34	36	37	38	40	42	43	46	47	50	52	53	56	58	60	62	71								
Chicory	Small	20	21																									
Fescue	Small	9,6	10	10,2	10,8	11	11,7	12	12,5	13	13,7	14	15	15,4	16	17	17,5	18	19	21								
R. Grass	Small	8,2	8,5	8,7	9,2	9,6	10	10,4	10,8	11	11,7	12	13	13,3	13,7	14	15	15,4	16	18	20	21						
Orchard grass	Small	7,2	7,5	7,8	8	8,3	9	9,2	9,7	10	10,5	11	11	11,7	12	13	13,3	13,7	14,4	16	17	19	21	22				
Phalaris	Small	27																										
Sorghum	Small	27	29	30	32	32,5	34	35	37	38	40	42	43	45	47	48	51											

GHERARDI G-100 DRILL

Fertilizer application rate chart - Kg/Ha Patent **N° 06.97.727.00**

16-gear gearbox with 12% jump between gears - SW 2010			UREA					DIAMMONIUM PHOSPHATE					SUPERPHOSPHATE				
			LINE FERTILIZER														
Z1	Z2	GEAR Nº	ROW SPACING (in cm)														
			17.5	21	35	52.5	70	17.5	21	35	52.5	70	17.5	21	35	52.5	70
16	32	1	15.0	12.5	7.5	5.0	3.8	22.5	18.8	11.3	7.5	5.6	30.0	25.0	15.0	10.0	7.5
		2	16.9	14.1	8.4	5.6	4.2	25.3	21.1	12.7	8.4	6.3	33.8	28.2	16.9	11.3	8.4
		3	19.1	15.9	9.5	6.4	4.8	28.6	23.8	14.3	9.5	7.1	38.1	31.8	19.1	12.7	9.5
		4	21.4	17.9	10.7	7.1	5.4	32.2	26.8	16.1	10.7	8.0	42.9	35.7	21.4	14.3	10.7
		5	24.0	20.0	12.0	8.0	6.0	36.0	30.0	18.0	12.0	9.0	48.0	40.0	24.0	16.0	12.0
		6	27.0	22.5	13.5	9.0	6.8	40.5	33.8	20.3	13.5	10.1	54.0	45.0	27.0	18.0	13.5
		7	30.5	25.4	15.2	10.2	7.6	45.7	38.1	22.8	15.2	11.4	60.9	50.8	30.5	20.3	15.2
		8	34.3	28.6	17.1	11.4	8.6	51.4	42.8	25.7	17.1	12.9	68.6	57.1	34.3	22.9	17.1
		9	38.3	31.9	19.1	12.8	9.6	57.4	47.9	28.7	19.1	14.4	76.6	63.8	38.3	25.5	19.1
		10	43.1	35.9	21.5	14.4	10.8	64.6	53.8	32.3	21.5	16.1	86.1	71.8	43.1	28.7	21.5
		11	48.6	40.5	24.3	16.2	12.1	72.9	60.7	36.4	24.3	18.2	97.1	81.0	48.6	32.4	24.3
		12	54.7	45.6	27.3	18.2	13.7	82.0	68.3	41.0	27.3	20.5	109.3	91.1	54.7	36.4	27.3
		13	62.3	51.9	31.1	20.8	15.6	93.4	77.9	46.7	31.1	23.4	124.6	103.8	62.3	41.5	31.1
		14	70.0	58.4	35.0	23.3	17.5	105.1	87.6	52.5	35.0	26.3	140.1	116.7	70.0	46.7	35.0
		15	79.0	65.8	39.5	26.3	19.8	118.5	98.8	59.3	39.5	29.6	158.0	131.7	79.0	52.7	39.5
		16	88.9	74.1	44.5	29.6	22.2	133.4	111.2	66.7	44.5	33.3	177.8	148.2	88.9	59.3	44.5
		5	96.1	80.0	48.0	32.0	24.0	144.1	120.1	72.0	48.0	36.0	192.1	160.1	96.1	64.0	48.0
		6	108.0	90.0	54.0	36.0	27.0	162.0	135.0	81.0	54.0	40.5	216.0	180.0	108.0	72.0	54.0
		7	121.8	101.5	60.9	40.6	30.5	182.7	152.3	91.4	60.9	45.7	243.7	203.0	121.8	81.2	60.9
		8	137.1	114.3	68.6	45.7	34.3	205.7	171.4	102.8	68.6	51.4	274.2	228.5	137.1	91.4	68.6
		9	153.2	127.7	76.6	51.1	38.3	229.8	191.5	114.9	76.6	57.4	306.4	255.3	153.2	102.1	76.6
		10	172.3	143.5	86.1	57.4	43.1	258.4	215.3	129.2	86.1	64.6	344.5	287.1	172.3	114.8	86.1
		11	194.3	161.9	97.1	64.8	48.6	291.4	242.9	145.7	97.1	72.9	388.6	323.8	194.3	129.5	97.1
		12	218.7	182.2	109.3	72.9	54.7	328.0	273.4	164.0	109.3	82.0	437.4	364.5	218.7	145.8	109.3
		13	249.2	207.6	124.6	83.1	62.3	373.7	311.5	186.9	124.6	93.4	498.3	415.3	249.2	166.1	124.6
		14	280.2	233.5	140.1	93.4	70.0	420.2	350.2	210.1	140.1	105.1	560.3	466.9	280.2	186.8	140.1
		15	316.0	263.3	158.0	105.3	79.0	474.0	395.0	237.0	158.0	118.5	632.0	526.7	316.0	210.7	158.0
		16	355.7	296.4	177.8	118.6	88.9	533.5	444.6	266.8	177.8	133.4	711.4	592.8	355.7	237.1	177.8

Estimated values for 27 turns of wheel 12.4 x 28 in a 100 m. distance.

Different humidity conditions will affect the above data.

GHERARDI G-100 Drill
Fodder Density Chart - Kg/ha.

Z1/Z2 (LOW)	GEAR NUMBER	CROP			Z1/Z2 (HIGH)	GEAR NUMBER	CROP		
		ALFALFA	CLOVER	CANOLA (RAPESEED)			ALFALFA	CLOVER	CANOLA (RAPESEED)
16/32	**1**	1.4	1.8	3.3	32/16	**1**	5.8	7.1	13.2
	2	1.6	2.0	3.7		**2**	6.5	8.0	14.9
	3	1.8	2.2	4.2		**3**	7.3	9.0	16.8
	4	2.1	2.5	4.7		**4**	8.2	10.1	18.9
	5	2.3	2.8	5.3		**5**	9.2	11.3	21.2
	6	2.6	3.2	6.0		**6**	10.4	12.7	23.8
	7	2.9	3.6	6.7		**7**	11.7	14.4	26.8
	8	3.3	4.0	7.6		**8**	13.2	16.2	30.2
	9	3.7	4.5	8.4		**9**	14.7	18.1	33.8
	10	4.1	5.1	9.5		**10**	16.6	20.3	38.0
	11	4.7	5.7	10.7		**11**	18.7	22.9	42.8
	12	5.3	6.5	12.0		**12**	21.0	25.8	48.2
	13	6.0	7.4	13.7		**13**	23.9	29.4	54.9
	14	6.7	8.3	15.4		**14**	26.9	33.1	61.7
	15	7.6	9.3	17.4		**15**	30.4	37.3	69.6
	16	8.5	10.5	19.6		**16**	34.2	42.0	78.4

Estimated values for 27 turns of wheel (12.4 x 28) in a 100 m distance.

Row spacing: 17.5 cm – Patent Nº 06.97.729.00

GHERARDI G-100 Drill
Fodder Density Chart - Kg/Ha.

Z1/Z2 (LOW)	GEAR NUMBER	CROP			Z1/Z2 (HIGH)	GEAR NUMBER	CROP		
		ALFALFA	CLOVER	CANOLA (RAPESEED)			ALFALFA	CLOVER	CANOLA (RAPESEED)
16/32	**1**	1.2	1.5	2.8	32/16	**1**	4.8	5.9	11.0
	2	1.4	1.7	3.1		**2**	5.4	6.6	12.4
	3	1.5	1.9	3.5		**3**	6.1	7.5	14.0
	4	1.7	2.1	3.9		**4**	6.9	8.4	15.8
	5	1.9	2.4	4.4		**5**	7.7	9.4	17.6
	6	2.2	2.7	5.0		**6**	8.6	10.6	19.8
	7	2.4	3.0	5.6		**7**	9.8	12.0	22.4
	8	2.7	3.4	6.3		**8**	11.0	13.5	25.2
	9	3.1	3.8	7.0		**9**	12.3	15.1	28.1
	10	3.4	4.2	7.9		**10**	13.8	16.9	31.6
	11	3.9	4.8	8.9		**11**	15.6	19.1	35.7
	12	4.4	5.4	10.0		**12**	17.5	21.5	40.2
	13	5.0	6.1	11.4		**13**	19.9	24.5	45.8
	14	5.6	6.9	12.9		**14**	22.4	27.6	51.5
	15	6.3	7.8	14.5		**15**	25.3	31.1	58.0
	16	7.1	8.7	16.3		**16**	28.5	35.0	65.3

Estimated values for 27 turns of wheel (12.4 x 28) in a 100 m distance.

Row spacing: 21 cm. – Patent Nº 06.97.730.00