

 **SOLA**

 **LAMUSA**

SD-3115

Mechanical seed drill



STARTING MANUAL

MAINTENANCE AND DOSAGE

SOLÀ seed drills and fertilizer spreaders are manufactured in a highly specialized environment and our factory has a vast network of satisfied customers.

SOLÀ machines use highly advanced technology and are guaranteed to work without malfunctions in a large variety of conditions. They SOLÀ machines are provided with easy-to-use and efficient devices and perform excellently with only minimum operator maintenance.

This manual will help you use your SOLÀ product with the maximum efficiency.

2nd Edition - April 2019
Ref.: CN-811107/GB
Created by: SOLA S.L.

It is forbidden to copy any part of this manual.
Specifications are subject to change or modification without notice.
The pictures included do not necessary show the standard version.

TABLE OF CONTENTS

1. INTRODUCTION	5
2. TECHNICAL SPECIFICATIONS	6
2.1 SD-3115 SEM	6
2.2 SD-3115 COMBI	6
3. SAFETY INSTRUCTIONS	7
3.1 SAFETY SIGNS	7
3.2 USE	8
3.3 SAFETY ARRANGEMENTS	8
3.4 LOADING AND UNLOADING	9
4. SOWING ESSENTIAL CONCEPTS	9
4.1 SOIL	9
4.2 SEED	9
4.3 DEPTH	9
4.4 SEED DOSE ADJUSTMENT	10
5. STARTING OPERATION	11
5.1 COUPLING	11
5.2 DISPENSER MECHANISM	11
5.3 SEED DOSAGE	12
5.4 SEED CONTROL	12
5.5 LAND TEST	13
5.6 COMBINED DISTRIBUTION	13
5.7 COMBINED HOPPERS	13
5.8 COMBINED DOSAGE	14
5.9 ARMS INDIVIDUAL ADJUSTMENT	14
5.9.1 SM	14
5.10 LEVELING AND DEPTH CONTROL	15
5.11 WHEEL SCRAPERS	15
5.12 HARROW	15
5.13 ROAD TRANSPORT	15
6. MAINTENANCE	16
6.1 GREASING	16
6.2 TYRE PRESSURE	16
6.3 NUTS AND BOLTS	16
6.4 ANTIOXIDE CONTROL (COMBINED MACHINE)	16
6.5 PROBLEMS SOLUTION	16
7. DOSAGE TABLES	17
7.1 SEED DOSAGE TABLE (kg/ha) - MODELS 250/14 & 300/16	18
7.2 SEED DOSAGE TABLE (kg/ha) - MODEL 300/21	19
7.3 DOSAGE TABLE. FERTILIZER	20

1. INTRODUCTION

Before any use of the machine it is very important to read the instructions and suggestions in this booklet, in order to reduce the danger of accidents and to prevent damages to the seed drill due to incorrect use or defective maintenance. You will increase its performance and useful life.

This booklet must be read by any operator of the machine, during its operation, repairs, maintenance and transport. It is an integrating part of the product, and must be kept in a safe place for consultation during the whole life span of the machine.

SOLÀ will not assume any responsibility for damages or breakdowns caused by non-observance of the instructions given in this booklet.

In the first chapters you will find the Technical Data and Safety Instructions, also some Essential Sowing Concepts. In the Rules of Use and Maintenance chapters are the basic knowledges for using the machine. The booklet is completed with a seed dosage table and Spare parts list.



MAQUINARIA AGRÍCOLA SOLÀ RESERVES THE RIGHT TO MODIFY ILLUSTRATIONS, TECHNICAL DATA AND TECHNICAL SPECIFICATIONS AT ITS DISCRETION.

You will find, in this operating manual, three types of safety and danger symbol:



TO FACILITATE OPERATION WITH THE SEED DRILL.



TO AVOID DAMAGES ON THE MACHINE OR IN THE OPTIONAL EQUIPMENTS.



THIS SYMBOL WARNS OF THE RISK OF INJURY.

2. TECHNICAL SPECIFICATIONS

2.1 SD-3115 SEM

TYPE ARMS	ARMS DISTANCE (CM)	WORK WIDTH (M)	TOTAL WIDTH (M)	HOPPER CAPACITY (LITRES)	MINIMUM POWER (HP)	WEIHGT (KG)	WHEELS
250/14	17,8	2,49	2,88	540	80		6.00-16 6PR
300/16	17,6	2,82	3,05	665	90		6.00-16 6PR
300/21	14	2,94	3,05	665	90	1.010	6.00-16 6PR
300/16 GC	17,6	2,82	3,05	826	90		6.00-16 6PR
300/21 GC	14	2,94	3,05	826	90		6.00-16 6PR

2.2 SD-3115 COMBI

TYPE ARMS	ARMS DISTANCE (CM)	WORK WIDTH (M)	TOTAL WIDTH (M)	HOPPER CAPACITY (LITRES)		MINIMUM POWER (HP)	WEIHGT (KG)	WHEELS
				WHEAT	FERTIL			
250/14	17,8	2,49	2,88	270	270	80		6.00-16 6PR
300/16	17,6	2,82	3,05	335	335	90		6.00-16 6PR
300/21	14	2,94	3,05	335	335	90		6.00-16 6PR
300/16 GC	17,6	2,82	3,05	424	442	90		6.00-16 6PR
300/21 GC	14	2,94	3,05	424	442	90		6.00-16 6PR

3. SAFETY INSTRUCTIONS

3.1 SAFETY SIGNS

On the machine you will find the following symbols:



PLEASE, READ THE SAFETY INSTRUCTIONS CONTAINED IN THIS OPERATION MANUAL WITH CARE AND ALSO OBSERVE ALL WARNING SIGNS



STAY AWAY OF THE TRACTORBACK PART DURING THE COUPLING OPERATION, DURING THE MANOEUVRING.
DANGER OF SERIOUS LESIONS



STOP THE TRACTOR ENGINE AND AVOID ITS START DURING THE MAINTENANCE OR REPAIRING WORKS IN THE SEED DRILL. CONSULT OPERATING MANUAL.



DO NOT PLACE UNDER THE SOWING EQUIPMENT OR UNDER SWINGING AREAS.
DANGER OF SERIOUS LESIONS.



DO NOT RIDE ON THE SEED DRILL STAIRS WHEN THE MACHINE IS WORKING.



CLOSE THE HOPPER COVER WITH CARE. DO NOT PLACE THE HAND INTO THE HOPPER TO AVOID LESIONS.



SUPERVISE HYDRAULIC PIPES. CONSULT OPERATING MANUAL FOR SERVICE PROCEDURES. DANGER OF SERIOUS LESIONS.



DO NOT PLACE UNDER THE TRACK MARKERS.
DANGER OF SERIOUS LESIONS.



HANDLING POINT FOR LIFTING.



DO NOT PLACE THE HAND INTO THE HOPPER WHILE THE AGITATOR SHAFT IS TURNING.
DANGER OF LESIONS.

3.2 USE

- Seed drills SD-3115 have been manufactured for the agricultural works, specially for cereals sowing and the other grain sowing.
- SOLÀ can not be held liable for any consequential damage resulting from incorrect use, metering or distribution.
- All relevant accident prevention, as well as other generally acknowledged safety and road traffic regulations, must be observed.
- All the machine modifications realised by the user, automatically exempt
- SOLÀ from its/his liability in respect on ensuing damages.



DO NOT PLACE STRANGE ELEMENTS INTO THE HOPPER.



BEFORE WORKING ON HYDRAULIC SYSTEM, LEAVES THE MACHINES ON THE FLOOR, ELIMINATE CIRCUIT PRESSURE AND STOP THE ENGINE.



THE HYDRAULIC SYSTEM GENERATES EXTREMELY HIGH PRESSURE. ALL PIPING, HOSES AND CONNECTIONS MUST THEREFORE BE CHECKED REGULARLY FOR LEAKAGE AND VISIBLE EXTERNAL DAMAGE. USEFUL LIFE FOR THESE ELEMENTS IS NOT MORE THAN SIX YEARS. YOU MUST CHANGE THEM AFTER THIS TIME.

3.3 SAFETY ARRANGEMENTS



BEFORE TO START THE MACHINE IT IS VERY IMPORTANT TO READ THE OPERATION SAFETY AND ROAD SAFETY.



ROAD TRAFFIC REGULATIONS AND SIGNS MUST BE OBSERVED.



IT IS STRICTLY FORBIDDEN TO RIDE ON THE MACHINE DURING WORKING AND TRANSPORT.



BEFORE STARTING, FAMILIARIZE WITH ALL ACTIVATION ELEMENTS, AS WELL AS WITH GENERAL OPERATION.



PAY SPECIAL ATTENTION DURING COUPLING AND UNCOUPLING OPERATION.



DURING THE SEED DOSAGE TEST, PAY ATTENTION TO DANGEROUS POINTS, SPECIALLY THE AGITATOR TEETH INSIDE THE HOPPER AND THE WHEEL SCRAPERS.



THE FAST-COUPLING CLAMPS MUST BE UNBLOCKED DURING NORMAL OPERATION. THEY MUST BE BLOCKED ONLY FOR UNCOUPLING.



NEVER LEAVE THE DRIVER SEAT DURING MACHINE OPERATION.



WHEN THE SEED DRILL IS RAISED, THE TRACTOR FRONT AXLE DISCHARGES. VERIFY THAT THE CHARGE IS ENOUGH TO AVOID LODGING DANGER. IN THIS SITUATION, VERIFY DIRECTION AND BRAKING CAPACITY.



DURING THE TRANSPORT WITH THE SEED DRILL RAISED, BLOCK THE DESCENT CONTROL. BEFORE DESCENDING OF THE TRACTOR, PLACE THE MACHINE ON THE GROUND AND REMOVE STARTING KEYS.



BE EXTREMELY CAREFUL WHEN WORKING WITH THE MACHINE IN RAISED POSITION. USE SUPPORT ELEMENTS TO AVOID A POSSIBLE DESCENT OF THE MACHINE.

3.4 LOADING AND UNLOADING

It is necessary to load and to unload the truck, if it is possible, with a bridge crane. The drawings 1 and 2 show the towrope position for the operation and the fastening points.

Pay attention with the operations. They must be done by responsible and experienced people.

To avoid serious damage, do not stay under the machine during the operation.

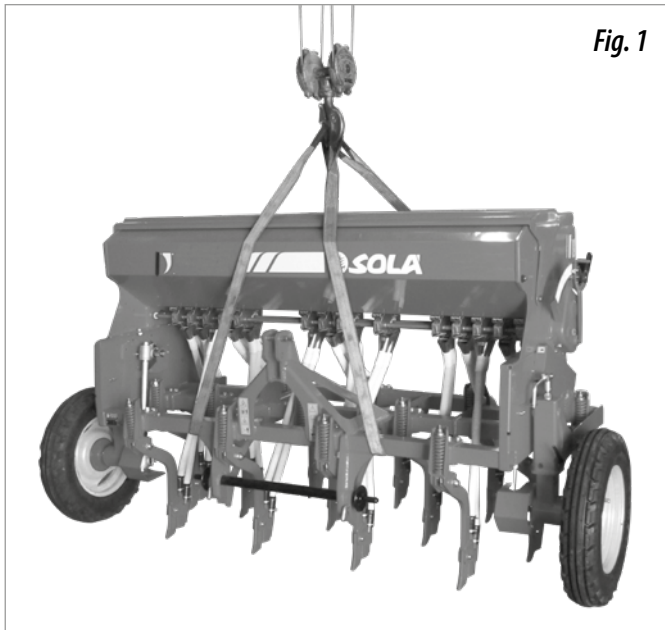


Fig. 1

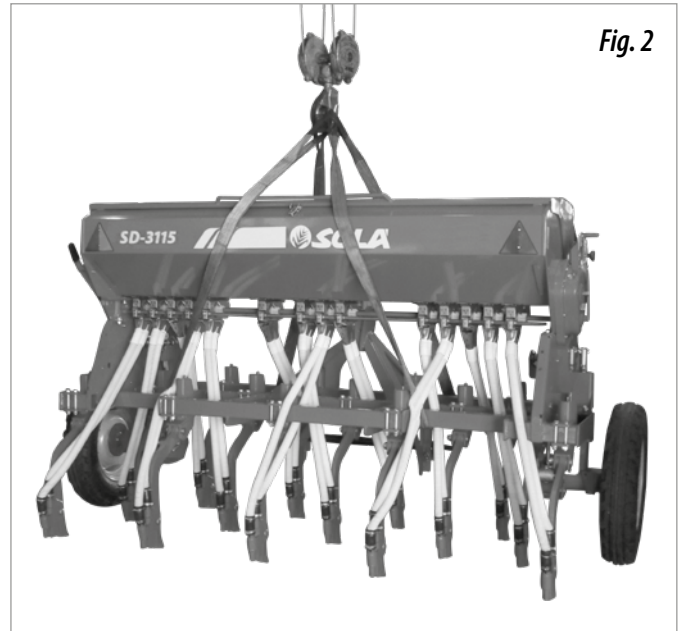


Fig. 2

4. SOWING ESSENTIAL CONCEPTS

4.1 SOIL



TO HAVE THE BETTER QUALITY OF SOWING, IT IS VERY IMPORTANT THE SOIL CONDITION. OVER BIG PATCH OR VARIABLE FURROW IT IS NOT POSSIBLE TO DO A GOOD WORK. ALTHOUGH SOLÀ MACHINES ARE ABLE TO TAKE HARD EFFORTS IN EXTREME CONDITIONS, SOWING WILL HAVE NOT GOOD QUALITY IF THE SOWING LAND HAS NOT GOOD CONDITIONS.

4.3 DEPTH



THE SUGGESTED SOWING DEPTH IS FROM THREE TO FIVE CENTIMETRES. TO DEEPEN MORE IS AN ERROR, AS THE RIZOME COULD NOT GET THE SURFACE, RESULTING IN THE PLANT'S DEATH. IT DOES NOT MATTER IF SOME GRAINS ARE VISIBLE: THE SPRING HARROW WILL COVER THEM.

Sowing depth has influence in the birth and vigour of the plant and consequently in its resistance to both frost and drought. The sprouting node will be always between 1 or 2 cm under the surface, independently of the sowing depth.

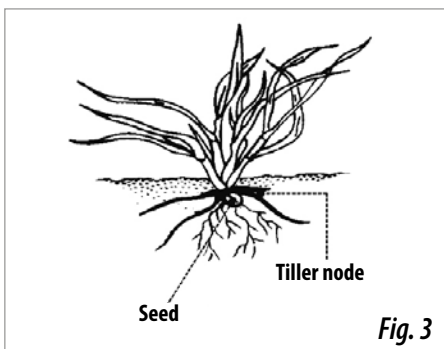
4.2 SEED



IT IS VERY IMPORTANT USE QUALITY AND CLEAN SEED. WHEN SOWING BARLEY, USE TRIMMED ONE.

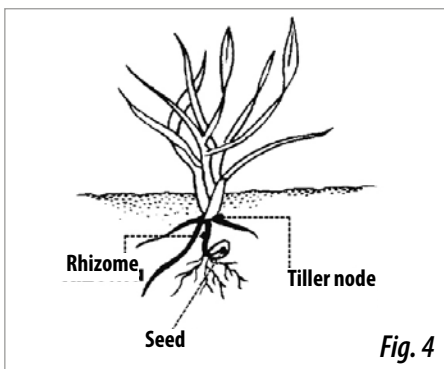


IMPORTANT: THE SOWING DEPTH ON TINE COULTERS SEED DRILL ISN'T UNIFORM, IT DEPENDS ON THE CONDITIONS OF HOMOGENIZATION CONDITIONS AND FIELD CHARACTERISTICS.



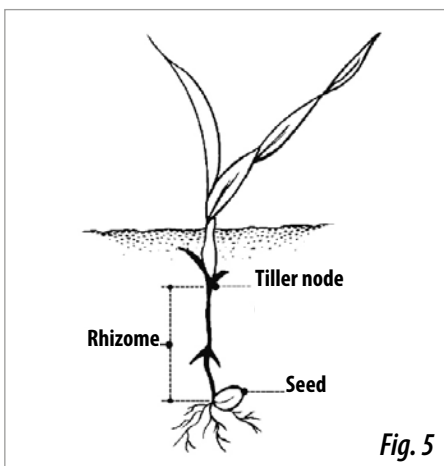
Sowing depth 2 to 4 cm

- Thick stem, short rhizome, good freezing endurance
- Multiple sprouting, 3 to 6 shoots and a lot of blades (6 to 10)
- Big tuft of roots, 5 cm wide and 10 to 12 cm deep
- With less grains per square meter, we obtain more ears



Sowing depth 5 to 6 cm

- Thin stem, rhizome exposed to freezing
- Delayed and poor sprouting, one shoot (sometimes none) not many blades, 3 or 4
- Medium tuft of roots, 3 cm wide and 5 cm deep
- We need more grains per square meter to obtain the same quantity of ears as in the first case



Sowing depth 8 to 10 cm

- Very thin stem. No sprouting and a single blade
- The grain reserves become depleted by forming a large rhizome that can be easily cut off by ice
- Poor tuft of roots, just 1 cm wide and 3 cm deep.
- We need twice the grains per square meter to obtain the same quantity of ears as in the first case

ADVERTENCIA



IN VERY COLD AREAS, SUCCESSIVE FROSTS MAY CAUSE SOIL SURFACE FLUFFING UP, INVOLVING THE RISK OF RELEASING THE INCIPIENT PLANT ROOTS AND CAUSING ITS DEATH. TO AVOID THIS DANGER, IT IS RECOMMENDABLE TO DEEPEN MORE THE SEED OR TO PASS A ROLLER IN ORDER TO COMPACT THE LAND AFTER SOWING.



IN ALL SOLÁ MACHINES, THE SEED DISTRIBUTOR SPEED VARIATOR IS ACTIVATE BY THE RIGHT WHEEL. BENDS MUST BE DONE COUNTERCLOCKWISE, AS TURNING AROUND THE DRIVE WHEEL WILL CAUSE A LOWER DISTRIBUTION OF SEED.



ONCE THE MACHINE IS WORKING, SEED WILL NOT BE DELIVERED IN THE FIRST GROOVE METER. ON THE CONTRARY, WHEN THE MACHINE STOPS, THE REMAINING GRAIN INSIDE THE PIPES WILL SLIDE DOWN AND PILE UP.



WORK ALWAYS AT A REGULAR SPEED. HARD BRAKES AND SUDDEN ACCELERATIONS RESULT IN IRREGULAR SEED DISTRIBUTION.

4.4 SEED DOSE ADJUSTMENT

With current use of high quality certificated seed, it is not enough to set the weight that has to be distributed by the seed drill, since the success of the harvest depends on the number of plants that reach complete ripeness.

Each plant requires its living space from which feeds on. In this way, as poor could be an high plant density as a low. To decide the adequate dose, we must know the number of plants per square meter we are going to sow.

Orientatively, the plant number recommended for wheat and barley in dry land is as follows:

AUTUMN:	Early sowing 200 plants per m ²
	Late sowing 265 plants per m ²
SPRING:	Early sowing 310 plants per m ²
	Late sowing 445 plants per m ²

Notice that, in spring, sprouting is always lower and, consequently, more seed is needed to obtain the same results that in autumn.



MAQUINARIA AGRÍCOLA SOLÀ, S.L., THINKS THAT IS RECOMMENDABLE TO SEED ADVICE ABOUT RECOMMENDED DOSIFICACION IN SOME TECHNICAL SOWING CENTER.



THE SEED DOSE MUST BE ADJUSTED TO EACH SOIL DEPENDING ON ITS TEXTURE, FERTILIZATION LEVEL, DAMPNESS AN SOWING TIME, GRAIN QUALITY, GERMINATIVE VALUE, ETC.

Moreover, it must be took into account that the maximum germinative value is variable and depends on a lot of factors. Experimentally, it can be established between 70% and 80%, that is equivalent to multiply by 1,43 and 1,25 respectively the number of grains needed.

Find as follows a method to determine the kgs per hectare to sow starting from plants per square meter we want obtain.

1) Introduce «grain counter» in the seed bag. Then, verify that in each hole we have only one seed (100 grains in total). Repeat the operation 10 times (you will obtain 1000 grains).

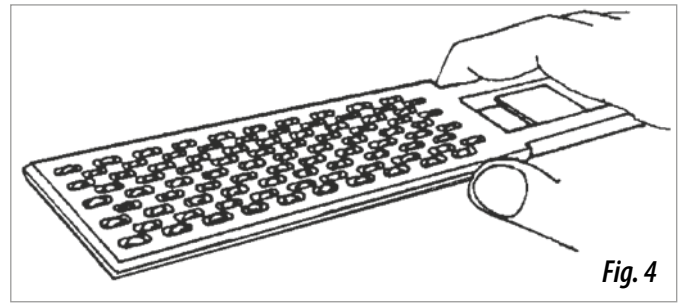


Fig. 4

2) To weight the 1000 grains in the precision weighing machine. The weight will be the OPERATIVE WEIGHT.

3) When we know the grains per square meter to sow, the kgs per hectare to adjust in the dosage control are:

$$\text{KILOS PER HECTARE} = \frac{(\text{grains per m}^2 \times \text{OPERATIVE WEIGHT})}{100}$$

5. STARTING OPERATION

5.1 COUPLING

The machines are equipped with a quick coupling device to the tractor hydraulic lifter. The pulling bar allows the machine adjustment to terrain unevenness.

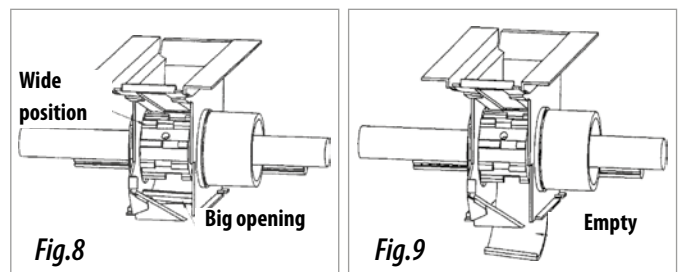
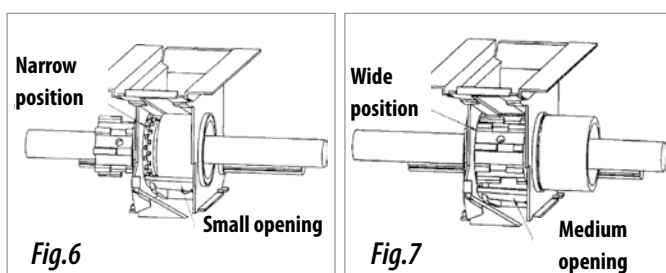


VERIFY THAT NOBODY IS BETWEEN THE SEED DRILL AND THE TRACTOR DURING COUPLING OPERATIONS.

5.2 DISPENSER MECHANISM

Solà dispenser roller can be adjusted with two working positions:

- Narrow cog with small teeth for small seed (fig. 6).
- Wide cog with large alternated teeth for normal and big seed (figs. 7 and 8).



The seed mobile bottom has two objectives:

- To adjust the lower seed dispenser opening according to the grain size (figs. 6, 7 and 8).
- Open the distributor system to empty the hopper (fig. 9).



WHEN SHIFTING THE SEED DISPENSER ROLLER BETWEEN NARROW AND WIDE POSITIONS, MAKE SURE THE ROLLER IS EMPTY.

Once the seed dispenser roller position (wide or narrow) is decided and the mobile bottom adjusted, the seed flow depends only on the rollers turning speed.

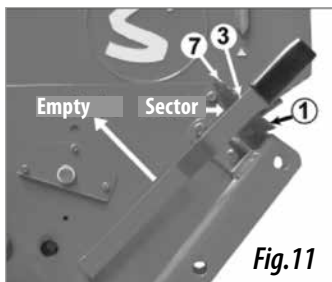
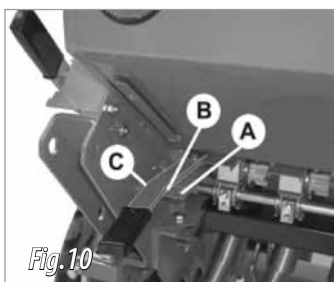
The seed speed variator accomplishes this mission, by allowing to deliver from 0 to 600 kg/ha, with rigorous precision.

5.3 SEED DOSAGE

Verify that the seed dispenser trapdoors are opened and allow the seed flow. **Before filling the hopper, attach the agitator to the seed speed variator axle.** Make sure that there are no strange bodies in the hopper.

Place the position lever of the dispensers:

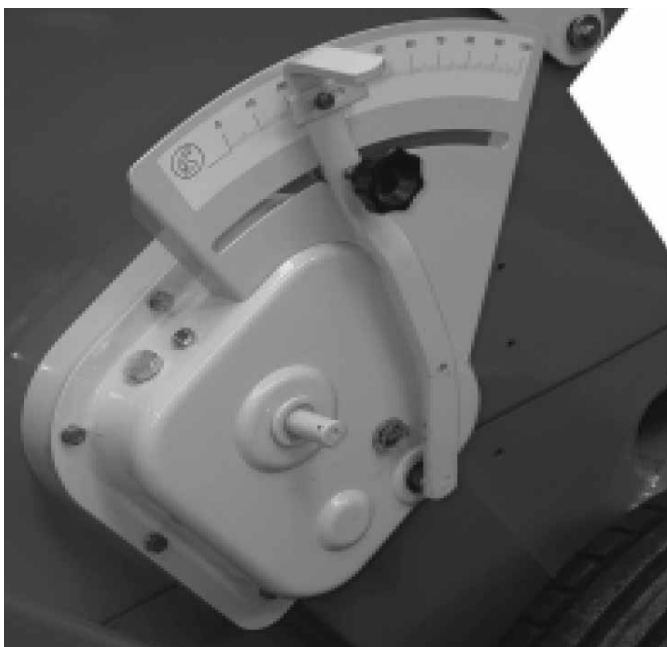
- A. RIGHT, WIDE COG FOR WHEAT, BARLEY, ETC. (FIG. 10)
- B. CENTRE, MEDIUM COG FOR SUNFLOWER, PEAS, ETC. (FIG. 10)
- C. LEFT, NARROW COG FOR LUCERNE, RAPE, ETC. (FIG. 10)



Place the mobile bottom lever (on the left side of the hopper) on the sector of 7 positions:

- N° 1, FOR SMALL SEED (FIG. 11)
- N° 3, FOR WHEAT AND BARLEY (FIG. 11)
- N° 5, FOR BIG SEED

To empty the hopper, place the plate under dispensers and take the lever to the front further on number 7. (fig. 11)

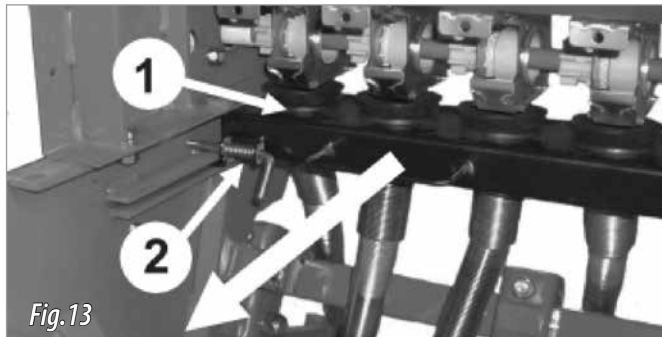


Finally, select the seed speed variator, place the lever on the sector from 0 to 100 and fix again on the number selected (fig.12). See the tables (pgs. 38-41).

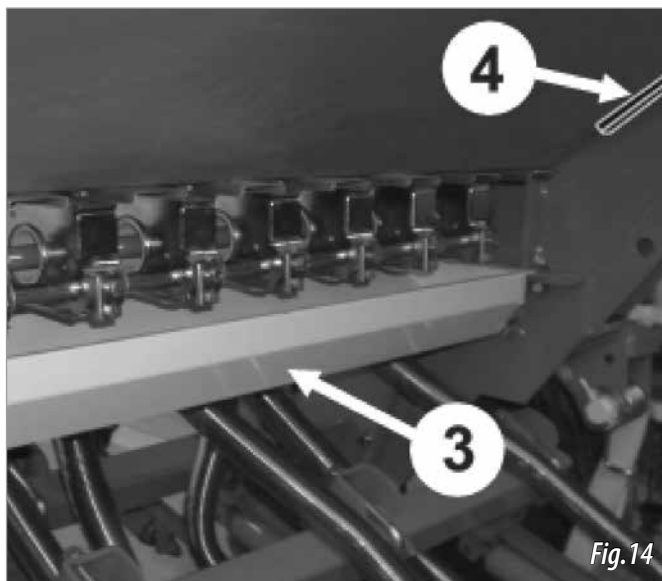
5.4 SEED CONTROL

Once the dispensers position is correct, the mobile bottom opening and the variator lever, it is very important and necessary to test the seed dose.

FIRST: slide the distribution bar (1, fig. 13) along its rails by releasing the clamps (2, fig. 13) just in the correct position in order to place the plate.



SECOND: slide the plate (3, fig. 14) from the transport position (4, fig. 14) under the dispensers. Machine SD-3115 COMBI does not fitted with the plate. In this case you must use a plastic film under the dispensers to collect the seed.



THIRD: place the shaft lever (1, fig. 15) in its place (2, fig. 15) on the right wheel and give some clockwise turns to the driving wheels, until some seed is delivered. Collect up the seed and return it to the hopper.

TYPE	WHEELS 6.00-16
250/14	43,3 turns
300/16	38,7 turns
300/21	36 turns

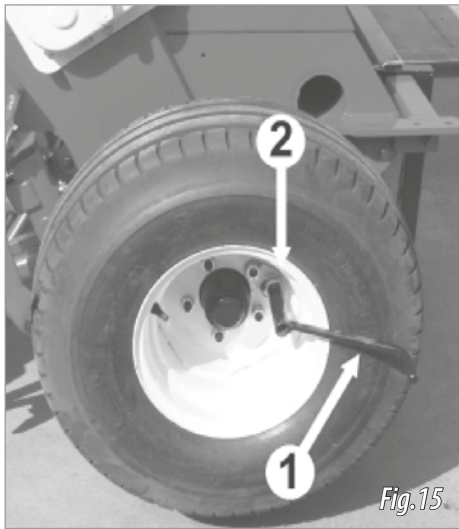


Fig.15

Give the turns indicated in the table above, approximately on turn per second. The number of turns may vary depending on the soil conditions, the wheel manufacturer or the tyre pressure. It is very important to do a land test as you have in the 5.5 part of this booklet.

After, collect and weight up the delivered seed in the plate or in the plastic film. Multiplying the result by 40 we obtain the kgs per hectare that the machine will distribute.

To realise these operations, it is very important that the machine is coupled to the tractor and slightly lifted (the wheels must turn freely), and it is also recommended to fill only half-hopper in order to make possible the wheel turning.

If the seed has an excess of preservation powder it may result in a flow decrease. So, it is recommendable to do a second dose test after having sow three or four hoppers.



BE CAREFUL WITH THE WHEEL.
YOU COULD DAMAGE WITH THE WHEEL SCRAPER.

5.5 LAND TEST

If it seems that there are significant differences between the dose test and the actual dispensed dose, due to an irregular or soft terrain, a field test can be performed.

First, with a measuring tape, signpost the test distance in meters in the plot of land that is to be sown.

MACHINE TYPE	DISTANCE (M)
250/14	100,0
300/16	89,3
300/21	83,3

Second, with the seed drill in working position, cover that distance. Count the wheel turns needed to complete the path.

Put a mark on the tyre to make this easier.

With these operations we will obtain the turns number for the seed test. If we do the test with this turn number, we are going to obtain the kgs per hectare delivered by the seed drill.

5.6 COMBINED DISTRIBUTION

Combined dispensers are one part by stainless steel and another part in Delrin.

Seed distribution roller is the same than the seed drill dispenser (see 5.2) and the fertilizer dispenser has constant step, fitted on hexagonal axle, to make easy to dismantle, without tools.

The fertilizer mobile bottom its a detachable stainless steel cover, this allows fertilizer roller cleaning (fig. 16).

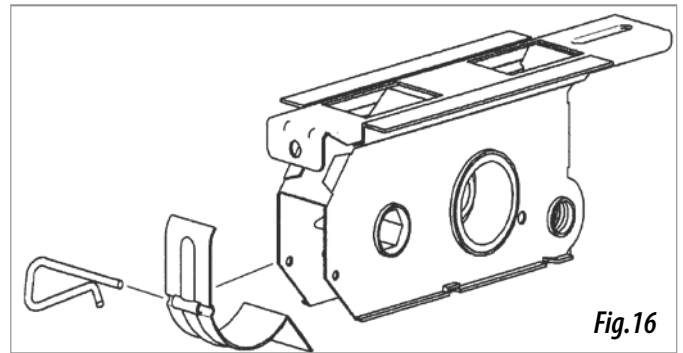


Fig.16

5.7 COMBINED HOPPERS

Combined hopper has two compartments: back compartment for seed (1, fig. 17) and the front compartment for fertilizer (2, fig. 17). The fertilizer compartment has a mesh cover (3, fig. 17) in order to avoid strange bodies, like stones, damaging the dosage mechanism.

Each compartment is fitted with its own flow control device.

The fertilizer compartment has a folding device (4, fig. 17) to avoid the fertilizer overflowing between the hopper and the cover.

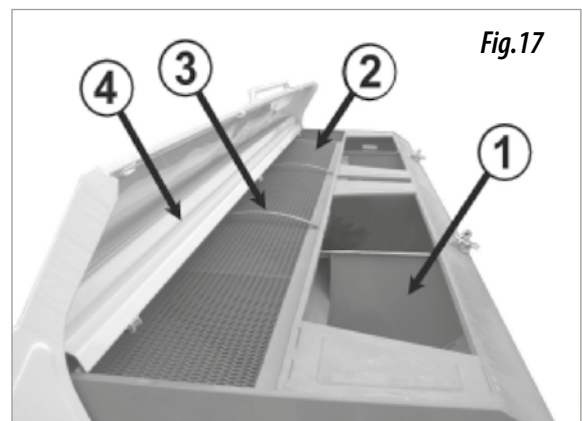
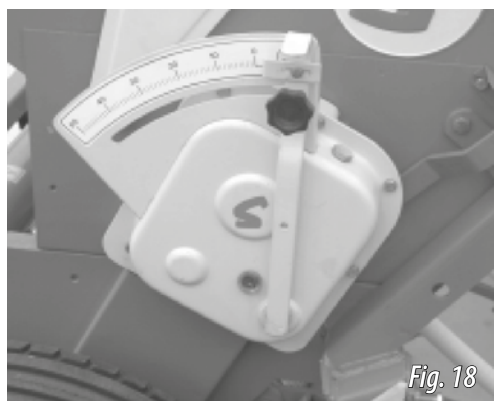


Fig.17

5.8 COMBINED DOSAGE

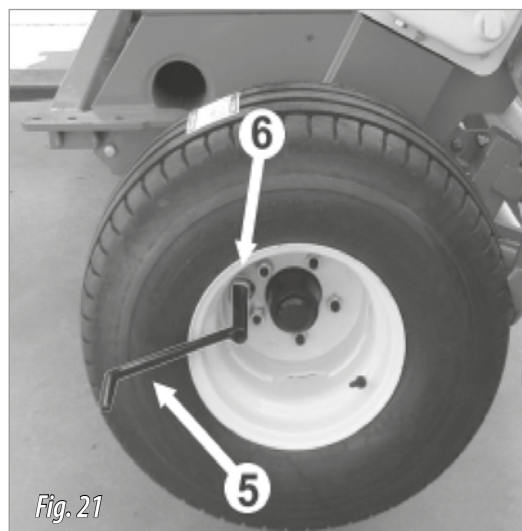
On the combined machines, dosage and seed control is the same to the seed drills.

The fertilizer dosage has to be done by means of the fertilizer variator placed on the left side of the machine (fig. 18), positioning the lever on the graded scale from 0 to 50 and fixing it on the number selected in the dosage tables (page 42).



These tables are for guidance only. The fertilizer density can vary depending on manufacture process. So, we recommend to carry out a fertilizer dose test likewise that of the seed:

Machine does not fitted with the plate. In this case, use a plastic film to collect the seed.



THIRD: place the lever (5, fig. 21) in its place (6, fig. 21) on the left wheels and five some clockwise turns to the driving wheel, until some seed is delivered.

TYPE	WHEELS 6.00-16
250/14	43,3 turns
300/16	38,7 turns
300/21	36 turns

The fertilizer collected, multiplied by 40, are the fertilizer kgs per hectare that the machine will distribute with the lever in the sector choosed. It is very important to do a precision test with the fertilizer, to verify the fiability level of the table. (pag. 23).



BEWARE OF GETTING INJURIES FROM THE SCRAPER WHEN TURNING THE WHEEL.



OPTIONALLY, COMBINED MACHINES CAN BE DELIVERED WITH ONE OR TWO SEED AND FERTILIZER TUBES.



IN THE DOUBLE TUBE OPTION AND WITH WET WEATHER, IT IS VERY IMPORTANT TO CLEAN DE FERTILIZER COMPARTMENT OF THE NOZZLE, IN ORDER TO AVOID THE BLOCKAGE DANGER.

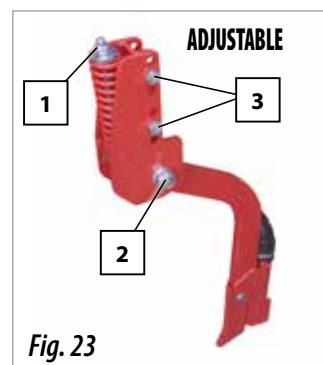
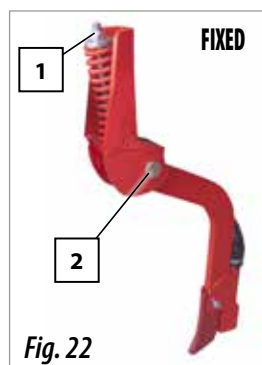


IT IS IMPORTANT TO CLEAN WITH PLENTY OF WATER NOZZLES, PIPES AND COULTERS FOR PREVENTING RUST.

5.9 ARMS INDIVIDUAL ADJUSTMENT

5.9.1 SM

The seeder is provided with two types of arms:



EACH SOWING ARM HAS TWO SPRINGS, IF YOU WANT TO DECREASE DE STRENGTH OF THE ARM (KG_f), YOU CAN REMOVE THE INNER SPRING.

FIX SEEDING ARMS

These arms are not adjustable in height.

These arms only allow to modify the pressure acting on the nut which is located on the higher part of the spring (1, Fig. 22).

The attachment of the arm to the support is done by a special bolt SOLÀ (2, Fig. 22) with self-locking nut. By acting on this nut the lateral play of the arm is controlled.

ADJUSTABLE SOWING ARMS IN HEIGHT

These arms match with the tractor and seeder wheels track.



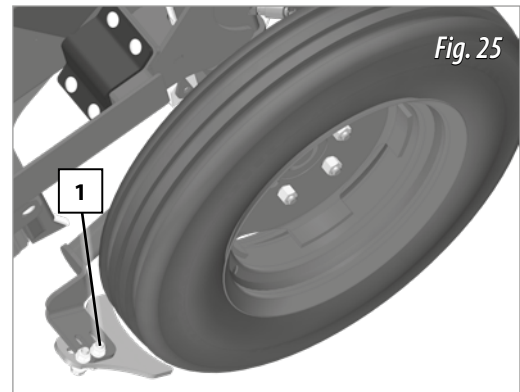
IMPORTANT: IN CASES OF A DEEP TRACK OF THE WHEELS, IT IS A MUST TO ACT ON THESE ARMS.

To regulate the pressure transmitted by the arm to the ground, actuate on the nut of the spring (1, Fig. 23). These arms are attached to the support by a special bolt SOLÀ (2, Fig. 23) with a self-locking nut. By acting on this nut the lateral play of the arm is controlled. These arms are adjustable in depth, allowing to lower the arms to regulate their height:

- 1- Remove the bolts and nuts (3, Fig 23).
- 2- Place the sowing arm in the desired position.
- 3- Insert the bolts and nuts into the new housing (3, Fig. 23).

5.11 WHEEL SCRAPERS (OPTIONAL)

The scrapers are adjustable through two bolts (1).



LEAVE A SPACE BETWEEN THE SCRAPER AND THE WHEEL OF 1 CENTIMETER.

5.10 LEVELING AND DEPTH CONTROL

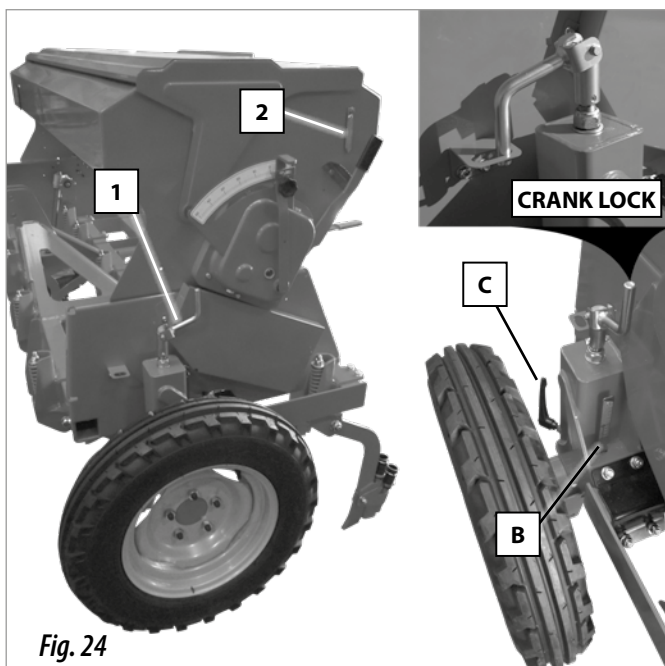
The seed depth is set through the spindles in each side wheel (1, Fig. 24). First unlock the lever of the wheel (C, Fig. 24). Set the desired height by turning spindle crank (1, Fig. 24). Use the grader plate as a guide to set the desired depth (B, Fig. 24).

When adjustment is finished lock the position with the lever (C, Fig. 24) and lock the spindle crank (see Fig. 24).



SET BOTH WHEELS FOR THE SAME

The machine must work with the hopper completely horizontal. Set the machine horizontal by shortening or extending the third point of the three point linkage of the tractor. Look at the arrow and make it coincide with the triangle sticker. (2, fig. 24).



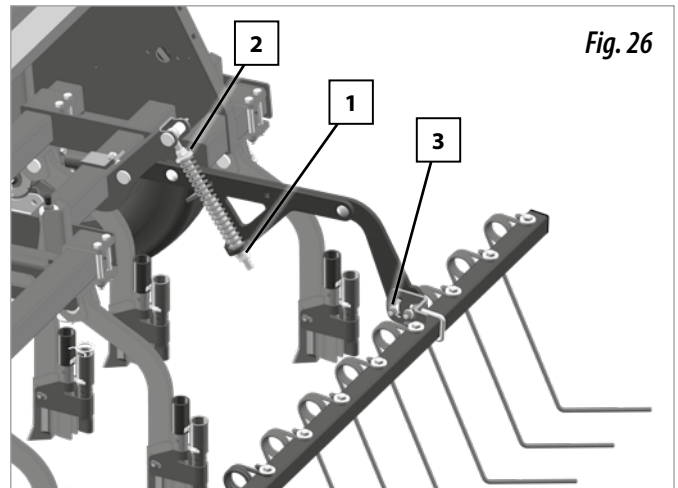
5.12 HARROW

The harrow has several regulations to adapt it to different terrain types.

IN HEIGHT, acting on the lower nut (1).

IN PRESSURE, using the upper nut to tension the spring. (2).

THE ANGLE OF THE TINES, actuate on the screw (3) which secures the tine bar frame.



5.13 ROAD TRANSPORT

According with the working conditions defined by the final user and the options incorporated, the machines could not meet the requirements established by the law to transport them on public roads. The compliance of the law is strictly responsibility of the final user of the machine.

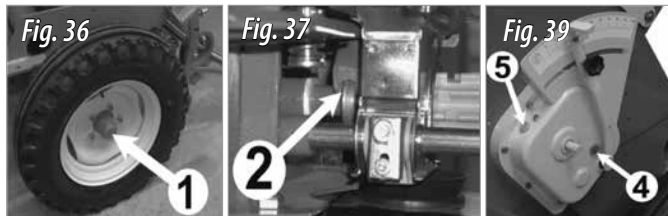
Maquinaria Agrícola Solá denies any responsibility derived of non-compliance of the regulations on the countries where their products are destined to.

6. MAINTENANCE

6.1 GREASING

Grease regularly the following parts: Wheel axles, removing the pressure tap. Caldic dense grease (1, fig 36).

Wide-narrow switching roller. Caldic dense grease. (2, fig. 37)



Spindle. Caldic dense grease (3, fig. 38).

Verify variator oil level through the spyhole (4, fig. 39) and if necessary remove the plug and refill with SAE 30 oil (5, fig. 39)



DO NOT GREASE THE DISPENSERS.

6.2 TYRE PRESSURE

The following data is corresponding with the full-load pressure prescribed by the tyre manufacturer.

Tyre 6.00 -16 --- 3,75 kg/cm²

Generally, in poor prepared soils, we recommend to reduce a bit the pressure in order to overcome the terrain irregularities and achieve more sowing regularity.

6.3 NUTS AND BOLTS

After some working hours, all bolts must be inspected and tightened if necessary, specially those tying the coulter.

6.4 ANTIOXIDE CONTROL (COMBINED MACHINE)

Once the sowing season is finished, antioxidant maintenance must be carried out as follows:

- Dismantle the pipes, the nozzles and dispenser stainless-steel covers. Clean them thoroughly.
- Wash with water jet the whole machine, specially inside the hopper and the dispensers (with the covers removed). Turn the left wheel so that the fertilizer rollers can be completely washed.
- Give a coat of paint to those parts with oxidation signs, specially those made of metal sheet.
- Verify the general greasing.

6.5 PROBLEMS SOLUTION

Sometimes and working with the machine, you can have some problems. Find as follows the problems more usual problems.

Problems with distribution system:

- Verify there are not strange elements into the distributors.
- Verify the distributors exit trap-doors. Trap-doors must be totally open.
- Verify the trap-doors are in the correct position.
- Verify the distribution rollers. They can be damaged.
- Avoid to work in very closed circles: it could produce a bad seed distribution.

The dose is not correct (it is inferior).

- Please, follow the booklet instructions to adjust the dose.
- Pay attention with the pressure wheels, wheel sliding on the land, etc.
- If the driving wheel do not touch the soil, verify the tractor hydraulic arms are well adjusted.
- Verify the connection fastener between the variator and the distributor axle.
- Wheel scrapers can brake the drive wheel.
- Verify the transmission device: bushing tooth, chain and variator pinion.
- After doing all the checking and the problem exists, please ask your SOLÀ dealer. Do not try to repair the variator.

7. DOSAGE TABLES



THE QUANTITIES YOU HAVE FOUND IN THE TABLES ARE FOR GUIDANCE ONLY. THE FLOW CAN VARY DUE TO PRESERVATION POWDER, SEED SIZE, DENSITY AND HUMIDITY.



TO DO A PRECISION SOWING, PLEASE FOLLOW THE PROCESS DESCRIBED IN SECTIONS 5.4 AND 5.5 YOU CAN FOUND IN THIS MANUAL.



AS A GENERAL RULE, SMALL GRAIN NEEDS LESS OPENING THAN THE BIG, ROUND GRAIN NEEDS LESS OPENING THAN LENGTH AND LIGHT GRAIN NEEDS MORE OPENING THAN THE HEAVY.

7.1 SEED DOSAGE TABLE (KG/HA) - MODELS 250/14 & 300/16

TYRE 6.00-16	WHEAT	BARLEY	TRITICALE	PEANS	BEANS	RAPE	SAINFOIN	VESCE	RAY-GRAS	ALFALFA	LUCERNE	FLAX	OATS
	18	18	18	36	18	36	18	18	18	18	18	18	18
Palanca de regulación													
Sep. brazos (cm)													
14					62	3,0	18,8	59		10,8	4,5	30	18,4
16					75	4,1	23	72		13,1	5,5	36	22
18					91	4,8	27	86		15,8	6,9	42	25
20	70	55	52	35	108	5,6	31	101		17,7	8,2	48	28
22	78	62	58	40	120	6,8	34	115		20	9,7	54	32
24	86	68	64	43	133	7,5	39	127		22	10,9	60	35
26	93	75	69	48	150	8,5	43	140	8,0	25	12,1	66	38
28	101	82	76	52	166	8,6	48	158	8,8	27	13,6	72	42
30	109	91	74	57	180	10,9	53	174	9,8	30	15,0	78	45
32	118	98	91	60	194	12,0	60	183	10,9	32	16,2	84	48
34	126	105	99	64	209	13,3	39	202	11,9	35	17,6	90	51
36	134	113	109	68	223	14,5	74		12,8	38	18,8	96	55
38	141	119	115	72		16,0	79		14,1	41	19,7	108	58
40	148	125	122	75		17,7	82		14,5	45	24	123	62
45	164	139	135	80		19,3	91		15,8	50	27	138	70
50	182	154	148	86		22			17,1	55	31	153	78
55	199	169	162	91					18,8	58	36	168	86
60	217	186	177	97					21	62			95
65	236	199	192	120					25				103
70	254	215	205	129					28				111
75	272	231	220	137					36				120
80	290	245	234										128
85	311	259	249										136
90	334	272	263										145
95	345	287	277										147
100	359	301	292										149
dispenser position	wide	wide	wide	wide	wide	narrow	wide	wide	narrow	narrow	narrow	wide	wide
Mobile bottom lever position	3	3	3	5	4	1	3	2	1	1	1	1	3
1000 grains operative weight	40 gr	46 gr	30 gr	293 gr	530 gr	-	19 gr	44 gr	-	-	12 gr	5,6 gr	24 gr

7.2 SEED DOSAGE TABLE (KG/HA) - MODEL 300/21

TYRE 6.00-16	WHEAT	BARLEY	TRITICALE	PEANS	BEANS	RAPE	SAINFOIN	VESCE	RAY-GRAS	ALFALFA	LUCERNE	FLAX	OATS
	14	14	14	29	14	29	14	14	14	14	14	14	14
Sep. brazos de regulación (cm)													
14					78	3,7	24	74		13,5	5,7	37	23
16					94	5,1	29	90		16,4	6,8	45	27
18					113	6,0	33	108		19,8	8,7	52	31
20	88	68	65	44	135	7,1	38	126		22	10,3	60	35
22	97	78	73	50	150	8,4	43	144		25	12,1	67	40
24	107	86	80	53	166	9,4	49	159		28	13,7	75	44
26	117	94	87	60	187	10,6	53	175	10,0	31	15,2	82	48
28	126	103	95	65	207	10,8	60	198	11,0	34	17,0	90	52
30	137	114	93	72	224	13,7	66	218	12,3	37	18,7	97	56
32	148	123	114	75	243	15,0	75	229	13,6	40	20	105	60
34	157	131	124	80	261	16,6	49	252	14,9	44	22	112	64
36	168	141	136	86	279	18,2	92		16,0	47	24	120	68
38	176	149	144	90		20	98		17,6	51	25	135	73
40	185	156	153	94		22	103		18,2	57	30	154	77
45	205	173	169	100		24	114		19,8	63	33	172	88
50	228	192	185	107		27			21	68	38	191	98
55	249	212	202	113					24	73	45	209	108
60	271	232	221	122					26	78			119
65	295	249	239	150					31				129
70	317	268	257	161					35				139
75	340	289	275	171					45				150
80	362	306	293										160
85	389	324	311										170
90	418	340	328										181
95	432	359	346										183
100	449	376	366										186
dispenser position	wide	wide	wide	wide	wide	narrow	wide	wide	narrow	narrow	narrow	wide	wide
Mobile bottom lever position	3	3	3	5	4	1	3	2	1	1	1	1	3
1000 grains operative weight	40 gr	46 gr	30 gr	293 gr	530 gr	-	19 gr	44 gr	-	-	12 gr	5,6 gr	24-gr

7.3 DOSAGE TABLE. FERTILIZER

FERTILIZER DOSAGE (KG/HA)

The combined machine only admits granulated fertilizers.



WE SUGGEST TO USE HIGH CONCENTRATION MIXTURE FERTILIZER. OTHERWISE, THE FERTILIZER HOPPER CAPACITY WOULD NOT BE SYNCHRONIZED WITH THAT OF THE SEED HOPPER.

sector N°	SD-3115 (250/14 - 300/16)
0	0,0
2	17,3
5	43
7	60
10	86
12	103
15	129
17	146
20	172
22	189
25	215
27	232
30	258
32	275
35	301
37	318
40	344
42	354
45	370
47	380
50	395

sector N°	SD-3115 (300/21)
0	0,0
2	22
5	54
7	75
10	107
12	129
15	161
17	183
20	215
22	236
25	269
27	290
30	323
32	344
35	376
37	398
40	430
42	443
45	462
47	474
50	494



MAQUINARIA AGRÍCOLA SOLÀ, S.L.

Ctra. de Igualada, s/n. 08280 **CALAF** (Barcelona) España
Tel. (0034) 93 868 00 60 - Fax (0034) 93 868 00 55



MAQUINARIA AGRÍCOLA SOLÀ, S.L.

Ctra. de Igualada, s/n. 08280 **CALAF** (Barcelona) España
Tel. (0034) 93 868 00 60 - Fax (0034) 93 868 00 55

