

IDENTIFICATION

Ownwer:

.....

Address

..... Nº

City UF

Machine Model

Serial Number

Manufacturing Year

Invoice Nº

Date / /

Authorized Dealer

WARRANTY CERTIFICATE

1. **JUSTINO DE MORAIS, IRMÃOS S/A – JUMIL**, guarantees the agricultural equipments and its respective parts, of its manufacturing, hereinafter simply denominated **PRODUCT**, are free of workmanship defects, as in its construction as in the material quality.

2. The questions which are related to the Warranty Grant are ruled as per the following principles:

2.1. The constant warranty of this certificate will be valid:

a) By the 6 (six) months time counting from the date of the effective **PRODUCT** delivery to the agriculturist consumer;

b) Only for the **PRODUCT** that will be acquired, new, by the agriculturist consumer, directly from the Dealer or **JUMIL'S** Dealer, reserved and settled in the item 2.3.

2.2. Apart from the hypothesis in the sub-item, the Warranty to the consumer will be serviced by **JUMIL'S** dealer.

2.3. If the **PRODUCT** is sold to the farmer by a dealer who is not **JUMIL'S**, the right of Warranty will remain, but in this case, it must be made directly from **JUMIL**, in the terms of this Certificate.

2.4. The Warranty will not be granted if any damage to the **PRODUCT** or in its performance is caused by:

a) Negligence, imprudence or lack of operator's knowledge.

b) Non-observance of instructions and recommendations of use and maintenance cares, stated in this Instructions and Operator's Manual.

2.5. Likewise, the warranty shall not be granted if the **PRODUCT** undergoes suffer any transformation or modification after the sale, or if the purpose that destinies the product is altered.

2.6. The replaced or changed **PRODUCT** under this Warranty will be **JUMIL'S** Property, it must be returned to the customer after legal applicable requirements are fulfilled.

2.7. In the accomplishment of its constant evolution, **JUMIL** makes, permanently, to its products the improvements or modification, without having the obligation of making the same ones in products or models previously sold.

2.8- **JUMIL** will not be responsible by the indemnity of any harvest damage, due to inappropriate adjustment of **PRODUCT** devices, relative to the fertilizer or seed distribution

JUSTINO DE MORAIS, IRMÃOS S/A

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1 - INTRODUCTION

Congratulations, you have just purchased an equipment which is manufactured with the most modern process in technology and efficiency on the market, it is guaranteed by the well-known **JUMIL** Trade Mark.

This manual has the aim of instructing you in the correct use so that you can get the best performance and advantages the equipment has. For this reason, we recommend you to proceed with your attentive reading before working with the equipment.

Always keep it in a safe place in order to be easily checked whenever necessary.

JUMIL and its dealer network will always be at your service for information and technical explanations what is may be necessary for your product.

Phone: ++16 3660-1000

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www.jumil.com.br

2 - Product Presentation

CULTIMIX is an equipment destined for the cultivation that eliminates the competitive harmful herbs of the culture and for the fertilizing, completing the plants fertilization.

It is an equipment that works coupled in the three points of the tractor hydraulic system. It is constituted by a toolbar with 3, 0 or 3, 70 meters, and it can be supplied as **CULTIVATOR, FERTILIZER OR FERTILIZER-CULTIVATOR**, according to the purpose that will be used. However, as it is a very versatile equipment, can be complemented or modified after the purchase, being enough for that to acquire the Fertilizer Distribution System or **CULTIVATION SYSTEM**.

As Cultivator possess hoes of 10" or 13" that are fixed in the special steel rod with appropriate curvature, that was specially developed to provide an appropriate angle for the penetration and work of the hoe.

As Fertilizer, can be supplied with 2, 3 or 4 boxes, making the fertilizing through the conductors (superficial) or offset double discs (Incorporation).

As Fertilizer-Cultivator, can also be equipped with 2, 3 or 4 boxes and 10 or 13 hoes.

3 - NORMS OF SAFETY

When **JUMIL** manufactures its Agricultural Machines and Implements has the main objective to help the Man to develop a better LIVING STANDARD. However, in the use of these machines some cares must be RESPECTED:

DO NOT DESTROY THE UNIVERSAL BIOLOGICAL EQUILIBRIUM WITH INCORRECT AGRICULTURAL WORKS. NOR ALLOW THE MACHINE TO DESTROY IT. OBSERVE **STRICTLY THE SAFETY STANDARDS. BE ATTENTIVE !**

1) Always use the appropriate stairs and rails to get on or off the tractor.

2) When starting the motor, be correctly seated on tractor operator's seat and **ABSOLUTELY AWARE** of the complete knowledge of the use of tractor and equipment. Always use the tractor neutral gear, switch off the power takeoff and put the hydraulic command in a neutral position.

3) Do not use the tractor in closed rooms as the smoke from the exhaust pipes are toxic gases.

4) When maneuvering the tractor to be hitched to machine or implements, make sure there is enough room and there is nobody around, make the maneuvers in **SLOW GEAR** and be prepared to brake it in an emergency.

5) When using equipments **DRIVEN BY THE POWER TAKEOFF** (to hitch, to unhitch or to adjust) **STOP THE POWER TAKEOFF, STOP THE MOTOR AND REMOVE THE KEY FROM THE IGNITION. BE ATTENTIVE!**

6) When using loose clothes, always take care, do not get closer of the moving parts, your clothes can touch them and cause accidents.

7) Do not make any adjustment when the machine is being operated.

8) When working with implements or machines. **IT IS STRICTLY FORBIDDEN THE TRANSPORT OF ANY OTHER PERSON BEYOND THE OPERATOR, AS ON THE TRACTOR AS ON THE IMPLEMENT**, in case there is a seat or appropriate platform for this finality.

9) When working in steep areas, work with a total attention, always keep the necessary stability, in case of a lack of equilibrium, reduce the acceleration and keep the equipment on the soil then turn the tractor wheels to a descendant position.

10) On down the hills, always keep the tractor in geared position, the same you would use to go up.

11) When transporting the machine hitched to the tractor or turning it at the crop corners, we recommend you to take care, by reducing the speed to prevent force on the toolbar or drawbar.

12) Unless in specific occasion, the brake pedals must be connected on another (not independently).

13) If after hitching the implement to the hydraulic three points lift, and you realize its front is too light and it can go up, add necessary weights on its front.

14) When leaving the tractor, put the gear in neutral position, lower the implements which are raised, put the hydraulic command system in a neutral position and action on the stop brake.

15) When the tractor is not used for a long period, besides the previous procedures, stop the tractor motor and use the first gear if you are on a steep road and rear gear if you are going down the hill.

16) ALWAYS FOLLOW CAREFULLY THE SAFETY STANDARDS MADE BY THE TRACTOR'S MANUFACTURER.

17) A MAXIMUM CARE WHEN USING SEEDS WITH CHEMICAL TREATMENT, YOU MAY ASK FOR AN AGRONOMIST ASSISTANCE. DONOT MANIPULATE CHEMICAL TREATED SEED WITH BARED-HANDS.

17.1) ALWAYS WASH YOUR HANDS AND BODY EXPOSED PARTS WITH A LOT OF WATER AND SOAP, AT THE END OF EVERY WORK SHIFT, MAINLY BEFORE EATING, DRINKING OR SMOKING.

17.2) Do not throw rest of treated seeds and/or pesticide next to drinkable water well, stream, river and lakes.

17.3) Do not re-use empty container and flasks.

17.4) Always keep the genuine package and always closed and in a dry, air place and of a difficult access to children, irresponsible people and animals.

17.5) Avoid contact with the skin.

17.6) Before using pesticides, READ THE LABEL AND FOLLOW INSTRUCTIONS.

18) when driving the machine on roads, observe the following additional instructions:

a) if the machine is equipped with row markers, the row marker arms must be raised and held with their corresponding disc to inside position.

b) The equipments with an inferior or over 3m width can be transported on roads since they have suitable signs.

c) The equipments which cover the tractor rear signaling lights must have alternative rear signal light.

ATTENTION

When receiving your JUMIL equipment, check attentively its components which are delivered with the equipment and read carefully the warranty certificate in the first page of instruction manual.

4 - CULTIMIX TECHNICAL SPECIFICATIONS**CULTIVATOR**

Model	JM3010SH-C	JM3013SH-C
Toolbar	3,00 m	3,70 m
N° Hoes	10	13
Width	0,92 m	0,92 m
Required minimum Power	60 cv	70 cv
Coupling	3 points	3 points
Weight	227 kg	281 kg
Recommended work speed	5 km/h	5 km/h

FERTILIZER CULTIVATOR

Model	JM3010SH-CA		JM3013SH-CA		
Box Quantity	02	02	02	03	04
Required minimum Power (hp)	60/70	70/75	60/70	70/75	75/80
Weight (kg)	413	467	423	486	540
Toolbar	3,00 m		3,70 m		
N° Hoes	10		13		
Length	3,00 m		3,70 m		
Width	0,92 m		0,92 m		
Height	1,60 m		1,60 m		
Coupling	3 points		3 points		
Box Capacity (unit)	90 liters		90 liters		
Tractor PTO Driving	540 RPM		540 RPM		
Recommended work speed	5 km/h		5km/h		

FERTILIZER WITH OFFSET DOUBLE DISCS

Model	JM3010SH-AD		JM3013SH-AD		
Box Quantity	02	03	02	03	04
Offset double discs quantity.	04	06	04	06	08
Required minimum Power (hp)	60/70	70/75	60/70	70/75	75/85
Weight (kg)	413	467	423	486	540
Toolbar	3,00 m		3,70 m		
Length	3,00 m		3,70 m		
Width	0,92 m		0,92 m		
Height	1,60 m		1,60 m		
Coupling	3 points		3 points		
Box Capacity (unit)	90 liters		90 liters		
Tractor PTO Driving	540 RPM		540 RPM		
Recommended Work Speed	5 km/h		5km/h		

FERTILIZER WITH CONDUCTORS

Model	JM3010SH-AC		JM3013SH-AC		
Box Quantity	02	03	02	03	04
Required minimum Power (hp)	55/65	60/70	55/65	60/70	70/80
Weight (kg)	413	467	423	486	540
Toolbar	3,00 m		3,70 m		
Length	3,00 m		3,70 m		
Width	0,92 m		0,92 m		
Height	1,60 m		1,60 m		
Coupling	3 points		3 points		
Box Capacity (unit)	90 liters		90 liters		
Tractor PTO Driving	540 RPM		540 RPM		
Recommended Work Speed	5 km/h		5km/h		

5 - OPTIONAL

CODE	DESCRIPTION
<i>10.01.230</i>	<i>PTO SHAFT SET</i>
<i>17.01.050</i>	<i>FERTILIZING KIT WITH CONVENTIONAL DISC 13"</i>
<i>17.01.075</i>	<i>FERTILIZING KIT WITH OFFSET DISC 15"</i>
<i>17.01.560</i>	<i>KIT FOR ADAPTATION 02 BOXES WITH TRANSMISSION</i>
<i>17.01.561</i>	<i>KIT FOR ADAPTATION 03 BOXES WITH TRANSMISSION</i>
<i>17.01.562</i>	<i>KIT FOR ADAPTATION 04 BOXES WITH TRANSMISSION</i>
<i>17.01.563</i>	<i>KIT FOR ADAPTATION 02 BOXES WITHOUT TRANSMISSION</i>
<i>17.01.564</i>	<i>KIT FOR ADAPTATION 03 BOXES WITHOUT TRANSMISSION</i>
<i>17.01.565</i>	<i>KIT FOR ADAPTATION 04 BOXES WITHOUT TRANSMISSION</i>
<i>17.01.570</i>	<i>CULTIMIX BOX COMPLETE SET</i>
<i>17.20.030</i>	<i>PARKING STAND SET</i>
<i>17.32.236</i>	<i>REDUCER SET</i>

6 - PRODUCT COMPOSITION

The **Cultimix** is supplied as cultivator, fertilizator and fertilizer cultivator, with many cultivation options. When acquiring your **Cultimix**, check with attention the components that accompany the equipment.

1- Fertilizer Cultivator Components

1 - Toolbar assembled with 2, 3 or 4 boxes according to the model and customer's option.

2 - Ten adjustable arms with bundles of springs for toolbar of 3,00mm, or thirteen adjustable arms with bundles of springs for toolbar of 3,70 meters.

3 - One pto shaft.

4 - Four, six or eight hoses with fixers, according to the model and customer's options.

2 - Fertilizer Components

1 - Toolbar assembled with 2, 3, or 4 boxes according to the model and customer's option.

2 - Four, six or eight hoses and fixers of hoses, according to the model and customer's option.

3 - One pto shaft.

3 - Cultivator Components

1 - Toolbar of 3,00 or 3,70 meters according to the model and customer's option.

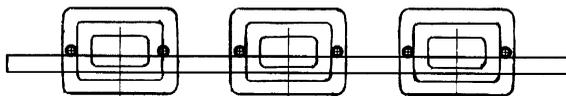
2 - Ten adjustable arms with bundles of springs for toolbar of 3,00 meters, or thirteen adjustable arms with bundles of springs for toolbar of 3,70 meters.

7 - PRODUCT ASSEMBLY

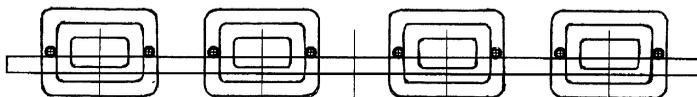
The machine already leaves out from factory assembled, just having need to proceed your preparation for use.

7.1 - Spacing

The **CULTIMIX** allows many assembly options, we show below the most common and that consist as option of sales and in the technical characteristics described previously.



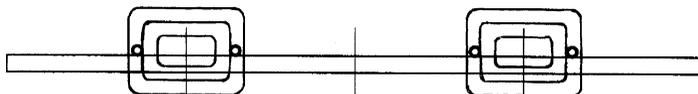
JM 3010 SH 6 CONDUCTORS / 3 BOXES / TOOLBAR 3,00m



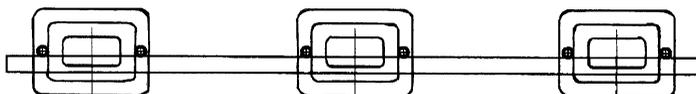
JM 3010 SH 8 CONDUCTORS / 4 BOXES / TOOLBAR 3,00m.



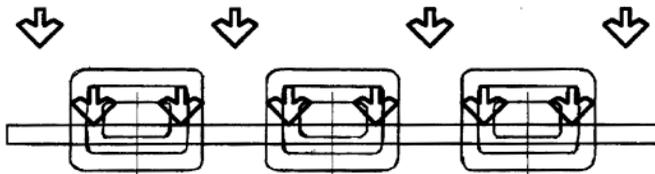
JM 3010 SH 4 CONDUCTORS / 2 BOXES / TOOLBAR 3,00m.



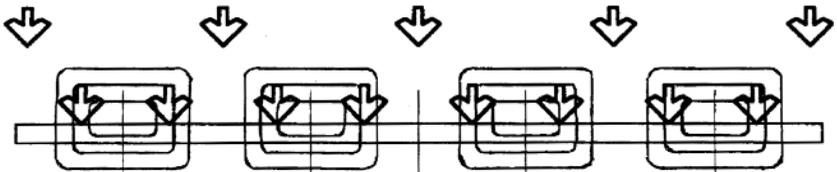
JM 3010 SH 4 CONDUCTORS / 2 BOXES / TOOLBAR 3,70 m.



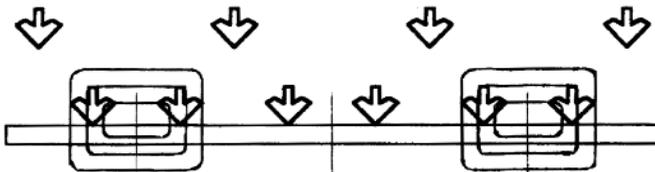
JM 3010 SH 6 CONDUCTORS / 3 BOXES / TOOLBAR 3,70 m.



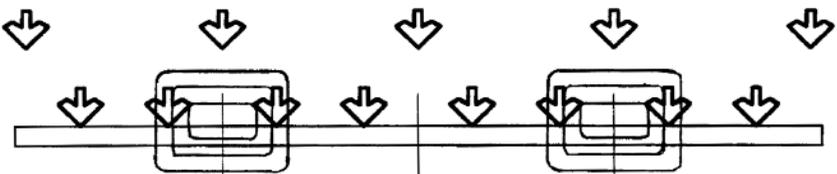
JM 3010 SH 10 HOES/ 3 BOXES/ TOOLBAR 3,00m.



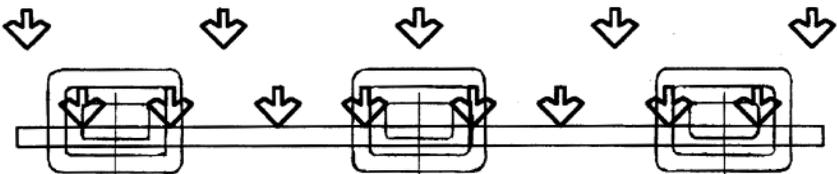
JM 3013 SH 13 HOES/ 4 BOXES/ TOOLBAR 3,70m.



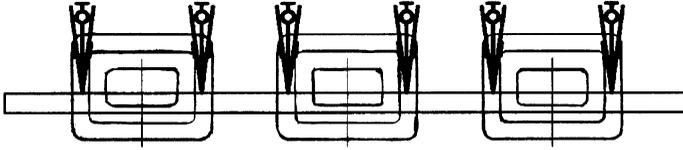
JM 3010 SH 10 HOES/ 2BOXES/ TOOLBAR 3,00 m.



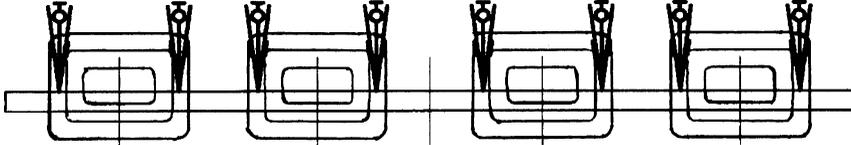
JM 3013 SH 13 HOES/ 2 BOXES/ TOOLBAR 3,70 m.



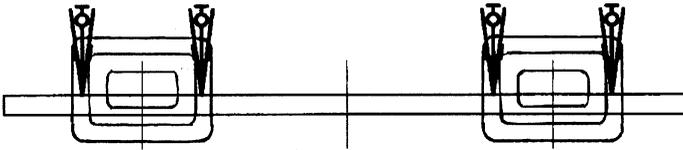
JM 3013 SH 13 HOES/ 3 BOXES/ TOOLBAR 3,70 m.



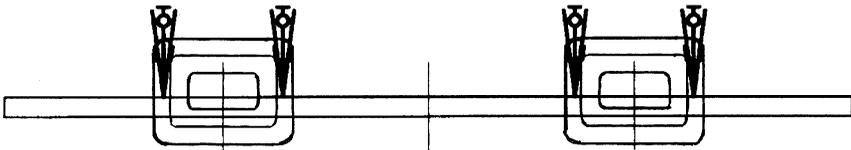
JM 3010 SH 6 OFFSET DOUBLE DISCS/ 3 BOXES/ TOOLBAR 3,00M



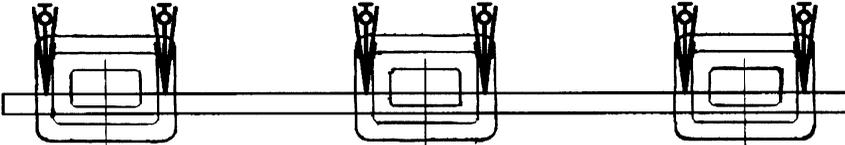
JM 3013 SH 8 OFFSET DOUBLE DISCS/ 4 BOXES/ TOOLBAR 3,70m



JM 3010 SH 4 OFFSET DOUBLE DISCS/ 2 BOXES/ TOOLBAR 3,00m



JM 3013 SH 4 OFFSET DOUBLE DISCS/ 2 BOXES/ TOOLBAR 3,70m



JM 3013 SH 6 OFFSET DOUBLE DISCS/ 3 BOXES/ TOOLBAR 3,70m.

8 - PREPARATION TO USE

Before beginning the work, make a general re-tighten in your equipment, mainly in the claws fixation screws of the furrower module and also verify the pins and cotter pins.

Verify if some object exists inside the box; in case there is some, remove it for not damaging the distributing sets. Make lubrication in the product according to the lubrication item orientations.

ATTENTION

Before placing Cultimix in operation, remove the plug (Fig.001 "a") of the reducer and substitute it by the plug with vent that accompanies the equipment.

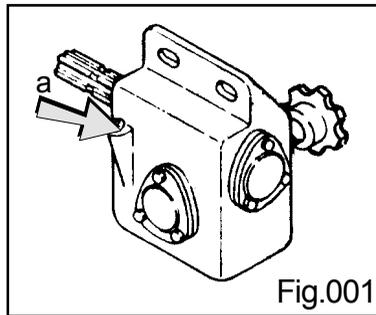


Fig.001

8.1 - Tractor Preparation

Before beginning to work with the equipment, should proceed to the tractor preparation. The tractor is usually equipped with wheeled appropriate for cultivation, with higher wheels and more narrow tires, in a way to not damage the culture during the work.

As the pressing index of the narrowest tire is larger, and as there is not need to obtain good traction, ballasts are not used in the back tires, removing the water and /or weights of the back wheels.

Follow the following instructions to obtain a good preparation.

1 - Tractor front ballasting

When working with an implement assembled in the tractor three points system as the case of Cultimix, it is absolutely natural that the tractor front in certain circumstances tends to rise of the ground. To compensate this tendency the manufactures of tractors place in the front of the tractor a support designated to support weights, that are used to equilibrate the tractor and they should be removed when they are not necessary.

A practical way to determine the minimum quantity of weights to equilibrate the tractor is the following:

In a balance only weight the wheeled front of the tractor without the implement coupled. After the implement coupling place it in transport position (raised completely by the hydraulic system) and weight the wheeled front again.

Should place the necessary tires to obtain at more least of the half of the initial weight and should use the tires that are supplied with the tractor, or in an authorized resale to acquire the same ones, avoiding as much as possible to place weights in the front wheels.

Care: the front weights placement not always makes possible the maintenance of the necessary stability to the tractor, above all if it be driven too fast in irregular soil with the lifted equipment. Be careful and drive slowly above all in these conditions.

2 - Gauge adjustment

Adjust the tractor gauge, according to the culture spacing to be cultured. For better adjustment of the tractor gauge follow the operator's manual of the same.

3 - Hitching of the machine in the tractor.

Connect the machine on the tractor three hydraulic points and the equipment bars. Put the 3rd point adjusting arm and connect the tractor to the machine and lock with the pin and keep the machine on the level, put the Pto transmission shaft . The Pto shaft which drives the machine must work rigorously in a straight line, the outer pto shaft can not work with pressure at the end of inner pto shaft. The play of 40mm as shown must be respected, so that the outer pto shaft does not work with pressure at the bottom of inner pto shaft. In case this happens, cut the outer and inner pto shaft until the correct play is found.

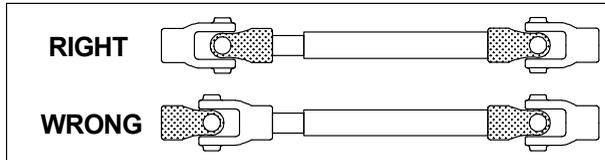


ATTENTION

Before coupling the pto shaft between the tractor and the machine make the necessary adjustments in the pto shaft.

Couple the pto shaft assuring that the fast locking pins are perfectly fitted. (locked).

To set up the parts, observe that the internal and external forks stay aligned at the same plain; otherwise the pto shaf will be subject to vibrations, provoking premature waste of the crossheads.



When changing the tractor model machine, verify the previous instructions again.

ATTENTION

The no observance of the detail can cause damages in the machine back bearing or in the proper pto shaft.

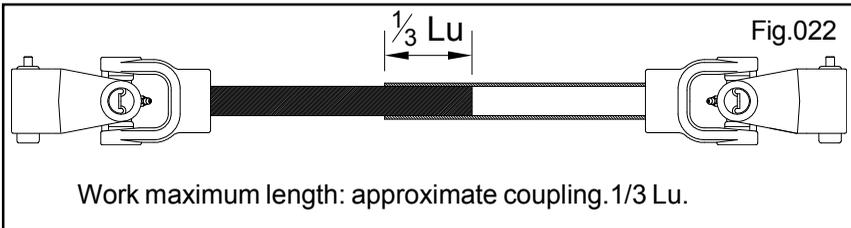
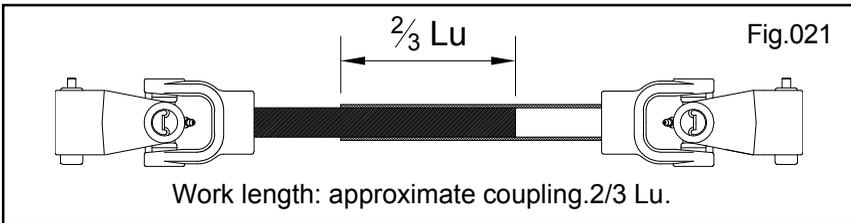
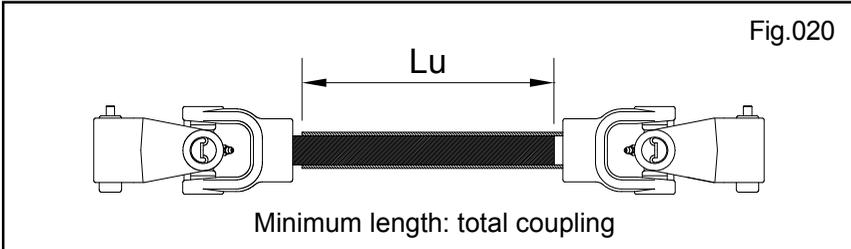
I - **ALWAYS** make the connection of the movement of PTO of the tractor with the motor in low RPM, **AND AFTER** accelerate progressively until the work regime - 540 or 1000 rpm in the PTO.

II - Before turning off the PTO, **REDUCE** the acceleration of the motor for regime of low RPM.

The non execution of those recommendations can cause serious damages to the transmission, turbofan and belt of the same.

The pto shaft length should be among the foreseen by the ISO norm, and can be determined according to the following schemes.

Lu = Length useful

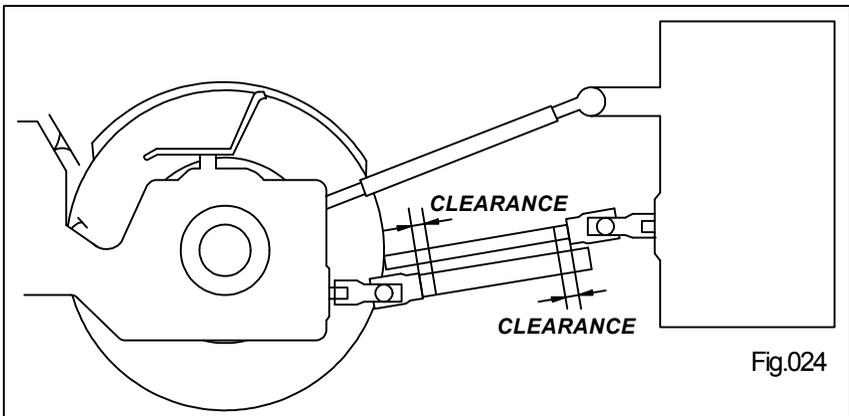
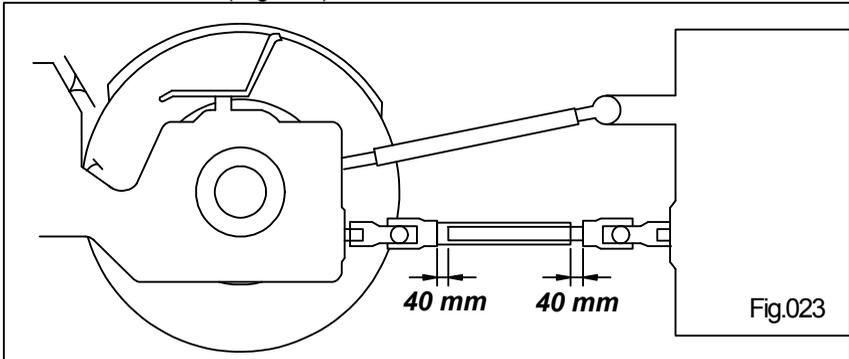


8.1.1 - How to adjust the pto shaft to the tractor and to the machine.

For the pto shaft good operation, we recommended to follow the instructions below before beginning the work;

1- With the machine assembled in the tractor, disjoint the pto shaft tube shaft. Through the respective pressure buttons, arrest the correspondent points in the tractor and in the machine.

2- Put upon one in the other and make in each one a mark that will delimit the surplus that should be cut. Besides this mark, should consider a clearance of 40mm (Fig.023).



3- After the determination of the places where will be made the cuts, shorten the external and internal protection tubes equally. Shorten the external and internal sliding outlines.

Remove all the points and the burrs, and grease the sliding outline.

8.2 - Leveling

For a perfect operation the **CULTIMIX** should be leveled in the two senses. For that, use the third point arm and the crank of the tractor lateral right arm.

After the leveling if possible in hangar or plain soil, to adjust the stabilizers in a way that the equipment stays with the minimum clearance possible and for that lift the equipment in the higher position of the hydraulic lifter and in this position adjust the stabilizers equally in a way that the equipment be centralized.

If you do this adjustment with the equipment in the ground and the stabilizers be tensioned, when lifting the hydraulic system to transport, there is the risk of damaging the stabilizers.

9 - ADJUSTMENTS

9.1 - Fertilizer distribution quantity.

The fertilizer outflow is made through the individual conductive endless threads. The different dosages is obtained through the chain positioning change among the drive (Fig.004 "a") (reducer) and the driven (Fig.004 "b") gears (driven shaft). To get the dosage besides the choice of the mentioned gears there is need of being also choose a relation in the gears that drives the distributor: two variable gears (Fig.004 "c") that drives the gear (Fig.004 "d") of the distributor shaft.

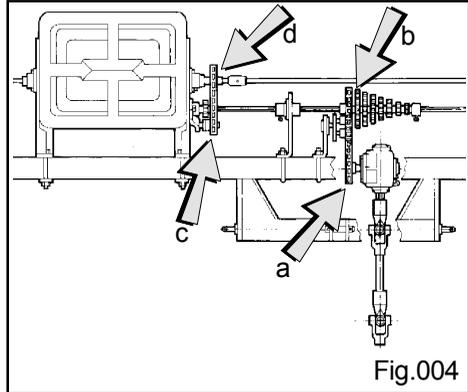


Fig.004

The speed change among $b \times c$ gears, allows altering the distributor rotation according to the necessary quantity of specified fertilizer in the distribution chart.

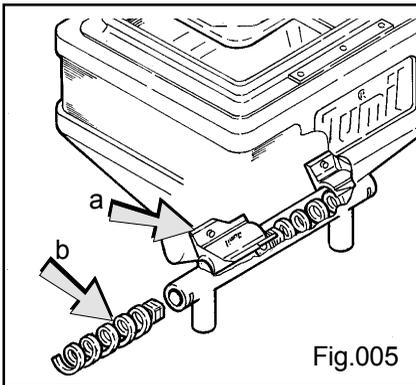


Fig.005

In case any exit is not used should close the fertilizer with the cover (Fig.005 "a"). To the cover placement, should remove the endless thread. (Fig.005 "b").

The indicative chart that follows was developed for an approximation and to give notion of how to start an adjustment, because there is variation in relation to types, marks, density and humidity of fertilizer, tractor

skidding index and speed in the cultivation operation.

The fertilizer distribution chart indicates the relation of gears to be used as well as the fertilizer quantity to be distributed according to the culture spacing.

The fertilizer distribution chart was determined considering that the work is made to 5km/h in the PTO 540 RPM.

CULTIMIX FERTILIZER DISTRIBUTION CHART																			
GEAR		50 METERS GRAMS PER ROW			KILOGRAMS QUANTITY PER HECTARE														
DRIVE	DRIVEN				MILIMETERS SPACING														
					400			450			500			550			600		
		A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
17	33 - 15	330	275	235	165	138	118	147	122	104	132	110	94	120	100	85	110	92	78
17	30 - 15	370	310	270	185	155	135	164	138	120	148	124	108	135	113	98	123	103	90
17	27 - 15	395	345	290	198	173	145	176	153	129	158	138	116	144	125	105	132	115	97
17	23 - 15	480	405	345	240	203	173	213	180	153	192	162	138	175	147	125	160	135	115
17	19 - 15	575	485	415	288	243	208	256	216	184	230	194	166	209	176	151	192	162	138
17	17 - 15	615	540	470	308	270	235	273	240	209	246	216	188	224	196	171	205	180	157
17	30 - 30	735	650	505	368	325	253	327	289	224	294	260	202	267	236	184	245	217	168
17	27 - 30	815	690	520	408	345	260	362	307	231	326	276	208	296	251	189	272	230	173
17	23 - 30	910	755	585	455	378	293	404	336	260	364	302	234	331	275	213	303	252	195
17	19 - 30	1080	900	780	540	450	390	480	400	347	432	360	312	393	327	284	360	300	260
17	17 - 30	1220	990	910	610	495	455	542	440	404	488	396	364	444	360	331	407	330	303
17	15 - 30	1395	1155	1020	698	578	510	620	513	453	558	462	408	507	420	371	465	385	340
17	13 - 30	1580	1360	1165	790	680	583	702	604	518	632	544	466	575	495	424	527	453	388

A = GRAINY FERTILIZER**B = AMMONIA SULFATE****C = UREA**

CULTIMIX FERTILIZER DISTRIBUTION CHART																			
GEAR		50 METERS GRAMS PER ROW			KILOGRAMS QUANTITY PER HECTARE														
DRIVE	DRIVEN				MILIMETERS SPACING														
					750			800			900			1000			1100		
		A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
17	33 - 15	330	275	235	88	73	63	83	69	59	73	61	52	66	55	47	60	50	43
17	30 - 15	370	310	270	99	83	72	93	78	68	82	69	60	74	62	54	67	56	49
17	27 - 15	395	345	290	105	92	77	99	86	73	88	77	64	79	69	58	72	63	53
17	23 - 15	480	405	345	128	108	92	120	101	86	107	90	77	96	81	69	87	74	63
17	19 - 15	575	485	415	153	129	111	144	121	104	128	108	92	115	97	83	105	88	75
17	17 - 15	615	540	470	164	144	125	154	135	118	137	120	104	123	108	94	112	98	85
17	30 - 30	735	650	505	196	173	135	184	163	126	163	144	112	147	130	101	134	118	92
17	27 - 30	815	690	520	217	184	139	204	173	130	181	153	116	163	138	104	148	125	95
17	23 - 30	910	755	585	243	201	156	228	189	146	202	168	130	182	151	117	165	137	106
17	19 - 30	1080	900	780	288	240	208	270	225	195	240	200	173	216	180	156	196	164	142
17	17 - 30	1220	990	910	325	264	243	305	248	228	271	220	202	244	198	182	222	180	165
17	15 - 30	1395	1155	1020	372	308	272	349	289	255	310	257	227	279	231	204	254	210	185
17	13 - 30	1580	1360	1165	421	363	311	395	340	291	351	302	259	316	272	233	287	247	212

A = GRAINY FERTILIZER
B = AMMONIA SULFATE
C = UREA

9.1.2 - Practical example and fertilizer distribution calculation

To get the good adjustment for the fertilizer distribution come in the following way:

1 - To travel 50 meters in a speed of 5km/h, the tractor is long 36 seconds.

2 - With the parked tractor, make the adjustment for the wanted fertilizer quantity.

3 - Turn on the PTO to 540 RPM. When the fall of the fertilizer be normalized, place in the hoses exit a recipient to pick up the fertilizer during 36 seconds.

4 - Weight the picked up fertilizer.

5 - Verify in the fertilizer distribution chart if the picked up quantity is the recommended according to the spacing of your culture.

2 - Practical Calculation for the fertilizer distribution

To make the fertilizer distribution calculation, come in the following way:

1 - Verify the spacing among rows;

2 - Define the fertilizer quantity to be distributed per hectare;

3 - Calculate according to example to proceed:

Formula data:

E – Spacing among rows

Q – Fertilizer quantity to be distributed

A – Area to be fertilized

D – Distance of 50 meters for test

X – Fertilizer Grams in 50 meters.

Fórmula:

$$X = \frac{E \times Q}{A} \times D$$

Example: one culture with spacing among rows of 90 cm (900 mm) to distribute 111kg of sulfate of ammonia in an area to be fertilized of 1 hectare (10.000 m²), with a test distance of 50 meters.

$$X = \frac{900 \times 111}{10.000} \times 50$$

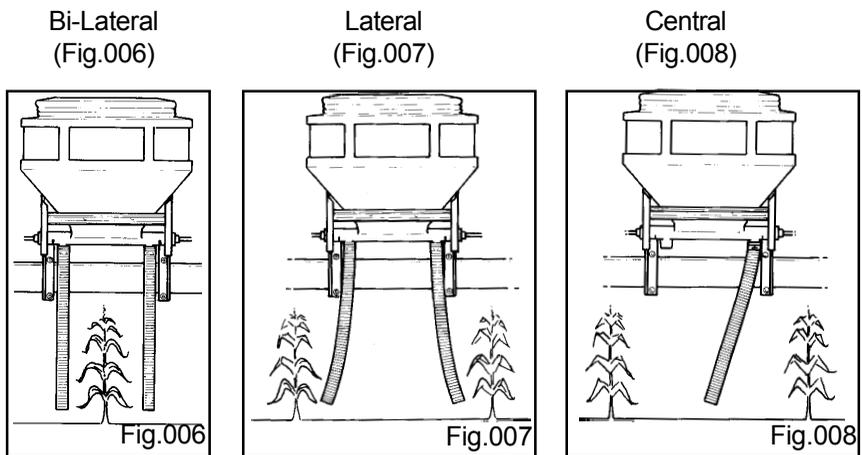
$$X = \frac{99.900}{10.000} \times 50$$

$$X = 9,90 \times 50 \quad X = 499,50 \text{ fertilizer grams in 50 meters}$$

⚠ ATTENTION

The chart presents in the second column the fertilizer quantity in grams in 50 meters per row, just considering a fertilizer exit for each row. When making the bi-lateral fertilizing, in other words, of the plant both sides, so much the values in grams in 50 meters per row as the other values of the kilogram chart per hectare, should be divided by 2 (two) because two fertilizer exits are used.

9.2 - Fertilizing System

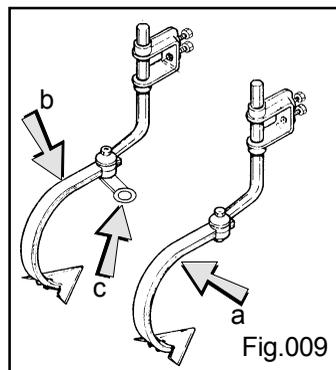


9.3 - Bundles of springs Adjustments

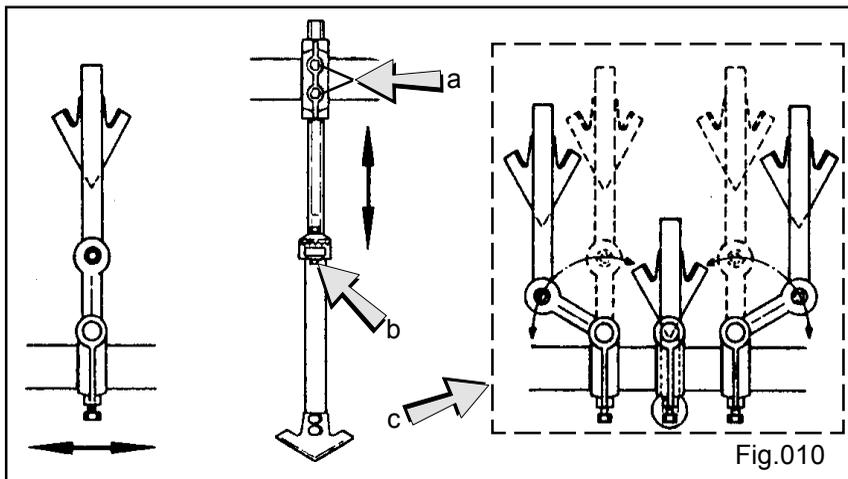
The units for mechanical cultivation are assembly in the toolbar according to the spacing and culture type.

They are presented in two models:

Being one to weed (Fig.009 "a") and other to weed and to fertilizer (Fig.009 "b") and they are identified through the fixer (Fig.009 "c").



For the varied cultivation spacing **CULTIMIX** allows fast and necessary adjustments.



When loosening the fixation screws (Fig.010" a") of the toolbar or the fixation screw of the toothed jaw (Fig.010" b") will make possible the angular adjustments as shows a (Fig.010" c").

10 - OPERATION

10.1 - Maintenance

We suggested some maintenance cares that will allow a long useful life and a better acting of the equipment.

Periodically should make a general repair in the equipment, the items to proceed are of extreme importance for the equipment perfect operation in the work without interruptions.

10.1.1 - Fertilizer Box Cleaning

After the use of your equipment do not leave the fertilizer inside the box.

We always recommended emptying the box totally, to scrape the fertilizer stuck in the thread and wash it with running water.

To make the cleaning, loosen the screws, remove the connection bush of the driven shaft in a way that the fertilizer stays free to facilitate the cleaning.



In the end of each work day remove the fertilizer remain from the boxes and clean the equipment carefully.

Re-tighten the screws periodically.

10.1.2 - **CULTIMIX** general cleaning

If it will store your **CULTIMIX** until the time of the following year, make a general cleaning in the machine. Remove the fertilizer conductors, wash and keep them.

Verify if all the movable parts do not present wastes, if there is need make the replacement, leaving your **CULTIMIX** in order to do the next work. Retouch the painting, mainly in the fertilizer contact parts.

Protect the plastic boxes and pulverize the **CULTIMIX** with castor oil, observing for not using burned oil.

Having accomplished all the maintenance repairs, store **CULTIMIX** in appropriate place, out of the contact with the bad weather. Use the parking stands to maintain it standing and do not overload the machine weight on the furrower rods.

11 - LUBRICATION

11.1 - Lubrication aims

The lubrication is the best warranty of the good operation and acting of the equipment. This practice prolongs the useful life of the parts and it helps in the economy of the maintenance costs.

Before beginning the work, be certified that the equipment is appropriately lubricated, following the orientations of the Lubrication Plain.

In this Lubrication Plain, we considered the equipment working in normal conditions of work; in severe services we recommended to reduce the lubrication intervals.

ATTENTION

Before beginning the lubrication, clean the greaser points and replace the damaged ones.

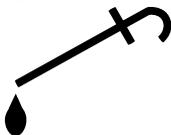
11.2 -Symbols of Lubrication



Lubricate with grease containing lithium soap, consistence NLGI-2 in intervals of recommended hours.



Lubricate with SAE 30 API-CD oil in intervals of recommended hours.



Verify the oil level in intervals of recommended hours, use SAE 140 API-GL5 oil or equivalent.



Cleaning with brush



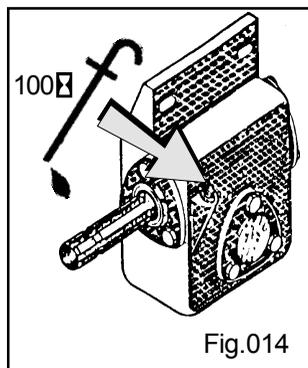
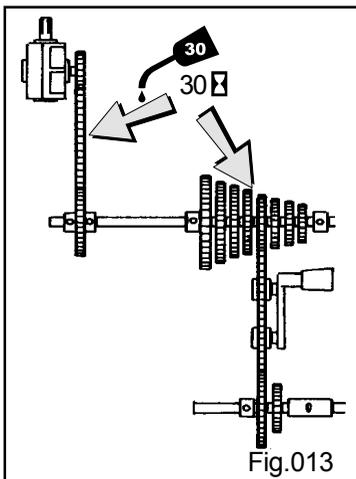
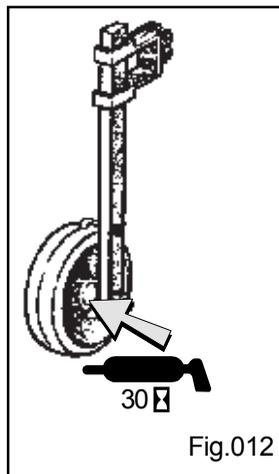
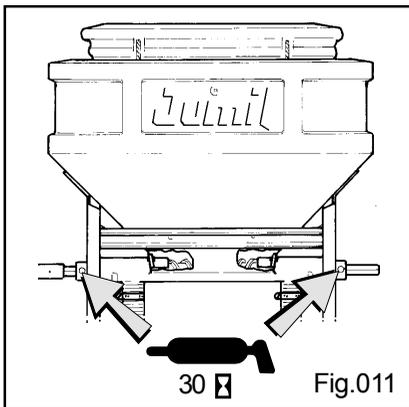
Intervals of lubrication in worked hours.

11.3 - Chart of lubricants

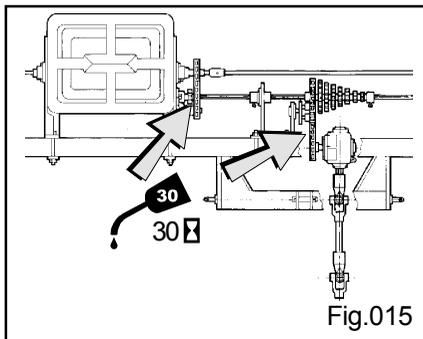
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RECOMMENDED LUBRICATION	EQUIVALENCE						
	PETROBRÁS	CASTROL	SHELL	TEXACO	IPIRANGA	BARDAHL	ESSO
GREASE CONTAINING LITHIUM SOAP NLGI-2	LUBRAX GMA-2	LM-2	ALVANIA EP-2	MARFAK MP-2	ISAFLEX 2	MAXLUB APG-2EP	ESSO MULTI
SAE 140 API-GL5 OIL	LUBRAX TRM-5 SAE-140	HYPOYDE B/EP-140	SPIRAX HD-140	MULTIGEAR EP SAE 140	IPIRGEROL SP-140	MAXLUB MA-135 EP	ESSO G 140
SAE30 API-CD OIL	LUBRAX MD-400 SAF-30	TROPICAL SUPER-30	RIMULA CI-30	URSA OIL LA-3 SAE-30	ULTRAMO TURBO SAE 30	MAXLUB NO 03	BRINDIL D3-30

11.4 - Lubrication Points



Fertilizer Box Bearing (Fig.011)
 Supporting Wheel Bearing (Fig.012)
 Reducer Chain (Fig.013)
 Endless Reducer (Fig.014). To complete the oil level, remove the plug and complete until the border of hole.
 Fertilizer distribution driving chain (Fig.015).



12 - INCIDENTS, POSSIBLE CAUSES AND SOLUTIONS.

⚠ ATTENTION

Before requesting the technical services verify the following items:

The cultivator is moving a lot of earth.	
Possible Causes	Solutions
<p>1 - The hoes are penetrating too much. a) Verify the third point arm; probably it is very short. b) Verify the depth limiter wheels. It can be that they are regulated for a larger depth than the ecommended.</p> <p>2 - The hoes are penetrating more than a side than that the other.</p> <p style="padding-left: 40px;">a-) Verify the arm of the hydraulic of the tractor right side, probably it is with a different length of the left arm.</p>	<p>1 - a) Place the cultivator in a plane place and prolong the arm until that Cultimix stay leveled b) Adjust with the right depth</p> <p>2 - a) The left arm doesn't possess system to alter its length so it is common that the right arm stays with different length. Act on the system and prolong or shorten the arm until that stays with the same length of the left arm.</p>

The spaces that are regulated the fertilizer or cultivation Cultimix row unit do not coincide with the culture spaces.	
Possible Causes	Solutions
<p>1 - Be certified that the planter was correctly adjusted for the wanted spacing. Probably it is with different spacing what provokes this disarrangement.</p>	<p>1 - You should adjust the Cultimix spacing to the planter spacing</p>

The hoes sometimes touch in a side or of another side of the plants

Possible Causes	Solutions
<p>1 - The tensioners of the hydraulic arms probably are loose, making possible this Cultimix oscillation.</p> <p>2 - The operator is not getting to maintain strong the tractor direction. Probably the tractor front is very light and becomes difficult the direction control.</p>	<p>1 - Adjust the tensioners equally, with the equipment lifted by the hydraulic system</p> <p>If you do this adjustment with the machine in the soil will take the risk of cold damage the tensioners when driving the lifting by the hydraulic system.</p> <p>2 - Place appropriate weights in the front and in the wheels tractor.</p>

The rods are not "shaking" the harmful herbs, which take the risk of not to die

Possible Causes	Solutions
<p>1 - Probably should be walking very slowly, what difficult the springs action.</p> <p>2 -The infestation is probably too big, having passed the appropriated time for the mechanical cultivation.</p> <p>3 - Can be working with the hoes very sling.</p>	<p>1 - Increase the speed until getting the springs action.</p> <p>2 - Can be making the mechanical cultivation, but in agreement with the wheatear (rainy) can take the risk of the herbs not die.</p> <p>3 - Reduce the speed, acting on the depth control wheels.</p>