

OPERATING INSTRUCTIONS

MARSHALL MULTISPREAD

MODEL: 830T

The all purpose Marshall MULTISPREAD will spread granulated fertilizers, lime, gypsum, manures, as well as seeds and grains for stock feeding or planting. Regular maintenance will ensure long and satisfactory service. To obtain the best results the following instructions should be carefully observed.

ATTACHING TO THE TRACTOR (PTO spinner drive models)

Attach the spreader to the tractor drawbar securely. The 830T is fitted with a Wide Angle Constant Velocity PTO shaft with a safe working angle of 70 degrees. When fitting the PTO shaft to the tractor make sure that the PTO shaft can not be damaged by any part of the tractor when turning. Standard PTO gearing is for tractors with 540 RPM PTO, 1000 RPM gearing and yoke can be supplied as an optional.

SPINNER SPEED

The recommend spinner speed is between 700 and 900 RPM which is between 400 and 540 RPM on the tractor PTO drive.

GROUND DRIVE FEED SYSTEM

The feed of fertilizer etc from the hopper to the spinners is driven by the vee-belt and pulleys attached to the inside of the wheel hub. This vee-belt also acts as the feed clutch and is activated by the jockey pulley which tensions the vee-belt. When disengaged, the vee-belt should be loose and free to slip on the vee-pulleys, the vee-belt need not be removed from the vee-pulleys unless the machine is towed at high speed or for long distances. The two ropes attached to the front of the spreader engage and disengage the vee-belt drive, an optional hydraulic cylinder can be fitted to work from the tractor hydraulics.

APPLICATION RATES

Application rates are altered by changing the feed belt speed and the feed door opening. The feed belt speed is altered by using different drive sprocket combinations located on the left and right hand sides of the machine, (refer to the Application Rate Charts for drive sprocket sizes and positions). The feed door opening is adjusted by the feed door handle and held in position by the feed door brake, both located at the rear of the spreader.

WIDTH OF PASS

The width of pass is the distance between the centres of each run or pass in the paddock. Some initial testing may be required to determine the correct width of pass for the particular material being spread. You should also allow for wind conditions and fertilizer consistency.

***** C A U T I O N *****

FOR YOUR SAFETY

TURN OFF THE TRACTOR ENGINE (AND THE SPREADER ENGINE IF FITTED) WHEN MAKING ADJUSTMENTS TO THE VEE BELTS, DRIVE SPROCKETS AND FEED DOOR OR WHEN CARRYING OUT NORMAL MAINTENANCE. REPLACE ALL SAFETY GUARDS WHEN FINISHED.

DO NOT STAND OR WORK NEAR THE SPINNERS WHILE THEY ARE ROTATING. DO NOT OPERATE THE SPREADER WHERE IT CAN CAUSE DAMAGE TO PROPERTY OR INJURY TO BYSTANDERS.

MAINTENANCE

After the first 8 hours of operation check all nuts and bolts on the machine for tension as well as the bearing and pulley grub screws.

BEARINGS

The machine is fitted with sealed self aligning bearings, however due to the abrasive qualities of fertilizers etc., grease must be applied at least once daily. The lower spinner bearings should be greased once every 4 hours of operation.

PTO SHAFT

The PTO shaft should be greased every 8 hours of operation, particular care should be taken to clean and grease the telescopic tubes.

DRIVE CHAINS

Drive chains should be kept well lubricated at all times, and before the machine is stored for any length of time.

VEE BELTS

Check for tension and wear regularly.

TYRE PRESSURES

Recommended tyre pressures are as follows...

1100 x 16 8 or 10 ply - 40 PSI

14.9 x 24 6 ply - 20 PSI

40 x 14 aero tyre - 35 PSI

WHEEL NUTS

Check the tension before using the machine and at regular intervals.

CLEANING AND STORAGE

After using the spreader all fertilizer etc. should be removed from the hopper and spinner areas, then wash down the machine with high pressure water. Do not use oil or diesel on the rubber feed belt. Store the spreader under cover and in a dry place, do not allow direct sunlight on to the feed belt.

APPLICATION RATE CALCULATIONS

As the application rate charts contained in this handbook are to be used as a guide only, the following formula can be used if you wish to check the application rate of the particular material you will be spreading.

First check the Width of Pass for the most even spread of the material you will be using.

Obtain the circumference of the spreader tyre - diameter X 3.14 (eg. 0.90 metre diameter X 3.14 = 2.82 metre)

Put a small quantity of material (fertilizer, seed etc.) in the hopper - rotate the tyre 10 times - collect and weigh the material which has fallen off the feed belt while the spreader tyre was turning. (eg. 2.5 kg)

Multiply the distance travelled in the 10 turns of the tyre (eg. 2.82 metre circ. X 10 = 28.2 metre) by the Width of Pass (eg. 15 metre)

Divide the weight of material collected by the square metres of spread in 10 turns, multiply by 10,000 to convert to Kilograms per Hectare.

(eg. 10 turns = 28.2 metre of travel X 15 metre width of pass = 423 sq.metre of spread; divide 2.5kg by 423 sq.metre = 0.0059 kg per sq.metre X 10,000 = 59.1 kg/ha)

To vary the rates, adjust the feed door openings and drive sprocket combinations.

APPLICATION RATE CHART - Kilograms per Hectare *

MULTISPREAD. Model: 830T on 1100 x 16 tyres

Type of material: SUPERPHOSPHATE - 1150kg/cubic metre

The rates shown below are to be used as a guide only, as different makes and types of fertilizers will vary in consistency. The procedure to check the fertilizer you are using can be found under "Application Rate Calculations".

Drive Sprocket Settings	Feed Door Opening	Width of Pass					
		18 metre (60')	20 metre (66')	22 metre (72')	24 metre (78')		
<u>Side A.</u>	20mm	40	35	30	25	Optional Small seeds Attachment 2 to 6 kg/ha (approx.)	
14 tooth to 50 tooth	25mm	45	40	37	30		
	30mm	55	50	45	40		
	35mm	65	55	50	45		
	40mm	75	65	60	55		
	45mm	80	75	65	60		
<u>Side B.</u>	50mm	90	80	75	70		
14 tooth to 42 tooth	55mm	100	90	80	75		
	60mm	110	100	90	80		
	65mm	120	115	100	90		
	70mm	130	120	105	100		
	75mm	140	125	110	105		
<u>Side A.</u>	40mm	130	115	105	100		Optional Small seeds Attachment 4 to 12 kg/ha (approx.)
21 tooth to 42 tooth	45mm	150	130	120	110		
	50mm	160	150	130	120		
	55mm	180	165	150	135		
<u>Side B.</u>	60mm	200	175	160	150		
14 tooth to 42 tooth	65mm	210	190	175	160		
	70mm	230	210	190	170		
	75mm	250	220	200	180		
<u>Side A.</u>	40mm	240	210	190	175		
14 tooth to 50 tooth	45mm	270	240	220	200		
	50mm	300	270	240	220		
	55mm	325	300	270	250		
	60mm	355	320	290	270		
<u>Side B.</u>	65mm	380	350	320	280		
30 tooth to 28 tooth	70mm	420	380	340	310		
	75mm	450	400	370	330		

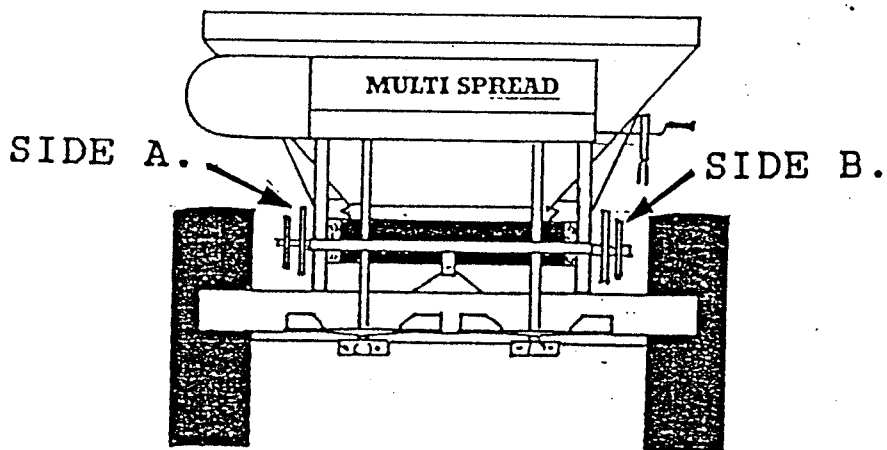
Continued.....

APPLICATION RATE CHART - SUPERPHOSPHATE (cont.)

Drive Sprocket Settings	Feed Door Opening	Width of Pass			
		18 metre (60')	20 metre (66')	22 metre (72')	24 metre (78')
<u>Side A.</u>	45mm	480	425	390	350
21 tooth	50mm	530	480	430	400
to	55mm	580	540	480	450
42 tooth	60mm	640	570	520	480
	65mm	690	620	570	510
<u>Side B.</u>	70mm	740	670	600	560
30 tooth	75mm	790	720	650	600
to					
28 tooth					

* To convert to lbs/acre deduct 10%

DRIVE SPROCKET POSITIONS



APPLICATION RATE CHART - kilograms per Hectare

MULTISPREAD. Model: 830T on 1100 x 16 tyres

Type of material: UREA - 750kg/cubic metre

The rates shown below are to be used as a guide only, as different makes and types of fertilizers will vary in consistency. The procedure to check the fertilizer you are using can be found under "Application Rate Calculations".

Drive Sprocket Settings	Feed Door Opening	Width of Spread					
		12 metre (40')	14 metre (46')	16 metre (52')	18 metre (59')		
<u>Side A.</u>	20mm	30	25	22	20	Optional Small seeds Attachment 2 to 6 kg/ha (approx.)	
14 tooth	25mm	40	35	30	25		
to	30mm	55	45	40	35		
50 tooth	35mm	65	55	50	45		
	40mm	75	65	60	55		
<u>Side B.</u>	45mm	90	75	65	60		
14 tooth	50mm	100	85	75	65		
to	55mm	115	95	85	75		
42 tooth	60mm	125	110	95	85		
	65mm	140	120	100	90		
	70mm	150	130	110	100		
	75mm	160	140	120	110		
<u>Side A.</u>	45mm	160	140	120	110		Optional Small seeds Attachment 4 to 12 kg/ha (approx.)
21 tooth	50mm	180	155	135	120		
to	55mm	200	170	150	135		
42 tooth	60mm	225	190	170	150		
	65mm	240	210	185	165		
<u>Side B.</u>	70mm	270	230	200	180		
14 tooth	75mm	290	250	220	190		
to							
42 tooth							

* To convert to lbs/acre deduct 10%

APPLICATION RATE CHART - Kilograms per Hectare

MULTISPREAD. Model: 830T

Type of material: LIME, GYPSUM & MANURES.

The rates shown below are based on a cubic metre weight of 1000kg

Due to the great variation of weight per cubic metre between the different types of materials, the chart below is intended as a guide only.

Rate adjustments are made by the following...

1. Changing the drive sprocket settings.
2. Adjusting the feed door openings.
3. Varying the width of pass. (The closer the pass, the heavier the application)

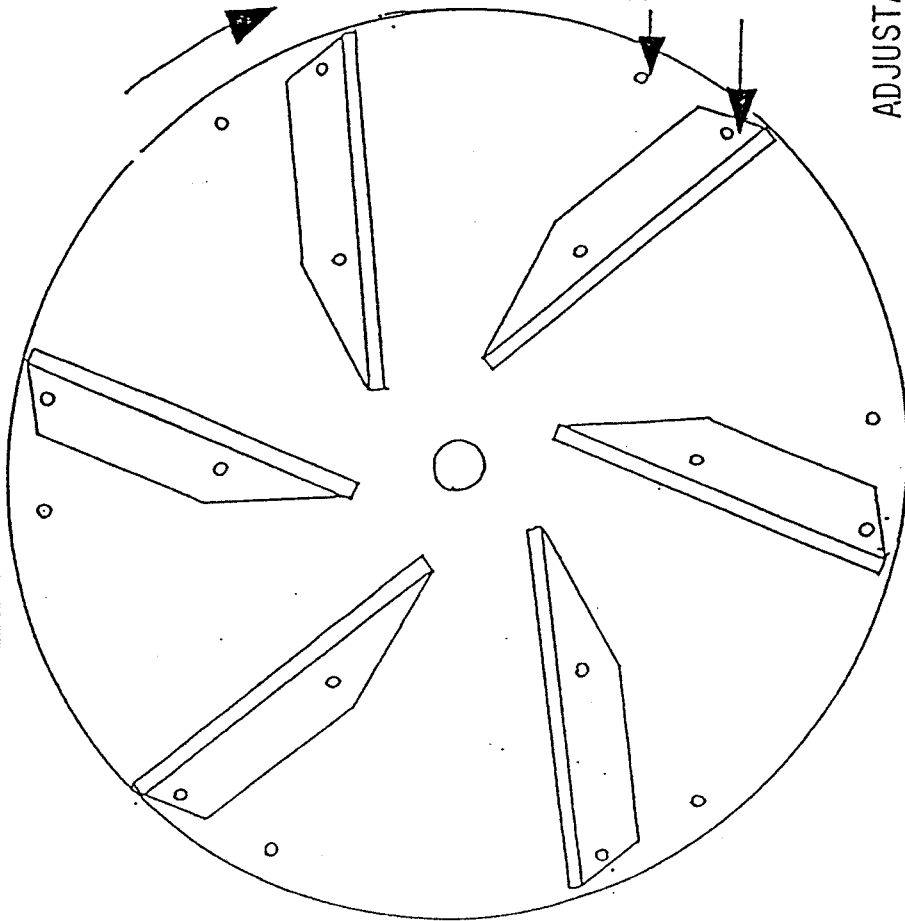
Drive Sprocket Settings	Feed Door Opening	KG per Hectare	Width of Pass
<u>Side A.</u>			
14 tooth	half	600	6 metres - 20ft
to	half	450	8 metres - 26ft
50 tooth	half	360	10 metres - 33ft
	full	1200	6 metres - 20ft
<u>Side B.</u>			
14 tooth	full	900	8 metres - 26ft
to	full	720	10 metres - 33ft
42 tooth			
<u>Side A.</u>			
21 tooth	half	1080	6 metres - 20ft
to	half	810	8 metres - 26ft
42 tooth	half	650	10 metres - 33ft
	full	2160	6 metres - 20ft
<u>Side B.</u>			
14 tooth	full	1620	8 metres - 26ft
to	full	1300	10 metres - 33ft
42 tooth			
<u>Side A.</u>			
14 tooth	half	1950	6 metres - 20ft
to	half	1460	8 metres - 26ft
50 tooth	half	1170	10 metres - 33ft
	full	3900	6 metres - 20ft
<u>Side B.</u>			
30 tooth	full	2900	8 metres - 26ft
to	full	2340	10 metres - 33ft
28 tooth			

Continued.....

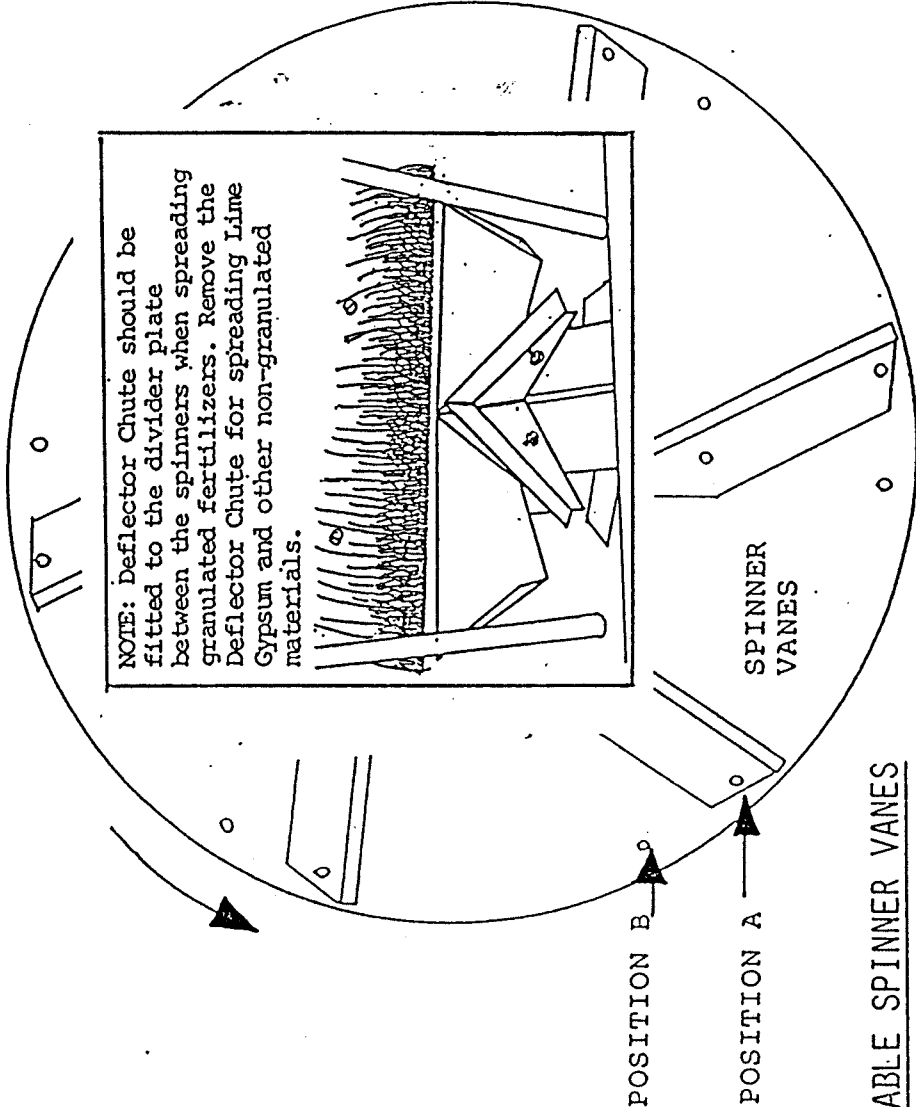
APPLICATION RATE CHART - LIME, GYPSUM & MANURE (cont.)

Drive Sprocket Settings	Feed Door Opening	KG per Hectare	Width of Pass
<u>Side A.</u>			
21 tooth	half	3400	6 metres - 20ft
to	half	2550	8 metres - 26ft
42 tooth	half	2000	10 metres - 33ft
	full	6400	6 metres - 20ft
<u>Side B.</u>	full	5100	8 metres - 26ft
30 tooth	full	4000	10 metres - 33ft
to			
28 tooth			

LEFT HAND SPINNER



RIGHT HAND SPINNER



ADJUSTABLE SPINNER VANES

This machine is equipped with adjustable spinner vanes - they can be set for spreading non-granulated materials such as Lime and Gypsum or adjusted to spread granulated fertilizers like superphosphate.

Each spinner vane is attached to the disc by two bolts - and inner and outer. The outer bolts have two positions on the disc - position "A" and position "B".

POSITION A: For spreading all granulated fertilizers, seeds and grains, very light applications of dry lime and gypsum.

POSITION B: For spreading normal applications of lime, gypsum, manure and other non-granulated materials.