



The Marshall Multispread

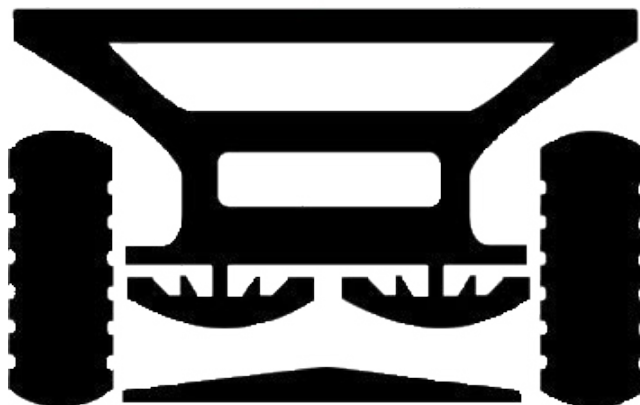
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840T 845T

MARSHALL
MULTISPREAD

User Guide



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1 Overview

This Manual

This Manual explains the everyday use of this machine to the operator, including Spinner Setup and Application Rate Charts.

Application

The Marshall Multispread 840T and 845T Fertiliser Spreader will spread a wide range of granular and non-granular fertilisers, from lime, gypsum and manures through to granulated materials like superphosphate, urea and various seeds.

The feed of product from the hopper to the spinners is driven by the vee belt and pulleys attached to the inside of the wheel hub. The vee belt also acts as a clutch and is tensioned by the jockey pulley. The feedbelt drive is engaged by the hydraulic cylinder which tensions the jockey pulley. When disengaged the vee belt should be loose and free to slip on the pulleys.

The vee belt need not be removed from the pulleys use travelling at high speed for a long distance.

2. *Caution - For Your Safety*

Turn off the tractor engine (and the Spreader engine if fitted) when making adjustments to the v-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.

Do not disconnect trailer models from the tractor drawbar when the hopper is partially empty as the machine may overbalance causing damage to the spinners.

Please take notice of following information. Each of the stickers are located on your machine.



Forward Speed is not to exceed 40km/h when machine unloaded and 25km/h when loaded with product. Excess Speed will increase the chances of rollovers and also effect the accuracy of the spread pattern due a slipstream effect behind the machine.



It is not recommended to operate the machine on inclines greater than 20 degrees, as the chances of rollover are greatly increased.

Disconnecting the machine from the tractor drawbar when the hopper is partially empty will cause the machine to overbalance and damage the spinners.



2. Caution - For Your Safety



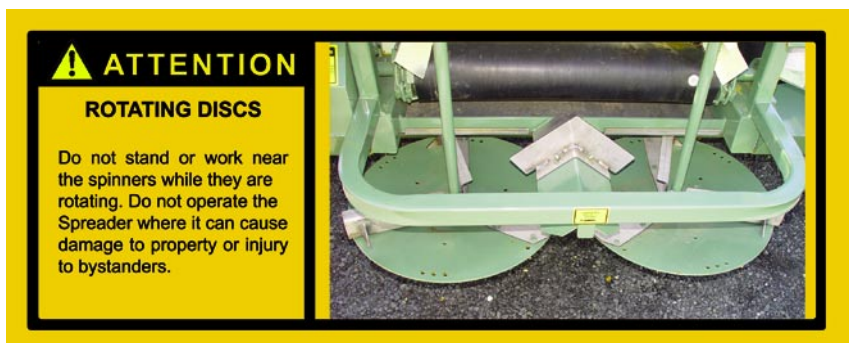
When servicing the gearbox and sprocket drive ensure the plastic guard is refitted to the Spreader.



Do not ride on Spreader under any circumstances.



Stay well clear of the hydraulic hoses and pipes that run the spinner and feed belt systems.



When the machine is operating do not come within 40 metres of spinner discs.

3. *Operating Instructions*

3.1 *Attaching To Tractor*

Attach the spreader to the tractor drawbar securely using a high tensile pin. The pin slips between the spreader drawbar hole and the drawbar tongue of the tractor. Plug the hydraulic lines into the tractor hydraulic remotes, ensuring that the hydraulic lines cannot be damaged when the machine is turning.

On standard machines there is one set of hoses to activate the hydraulic cylinder that engages the wheel drive. There is an additional set of hoses if optional hydraulic spinner or feedbelt drives are fitted.

Ensure Oil Flow from tractor is minimised when activating hydraulic cylinder. Excess oil flow and pressure will result in damage to the cylinder seals.



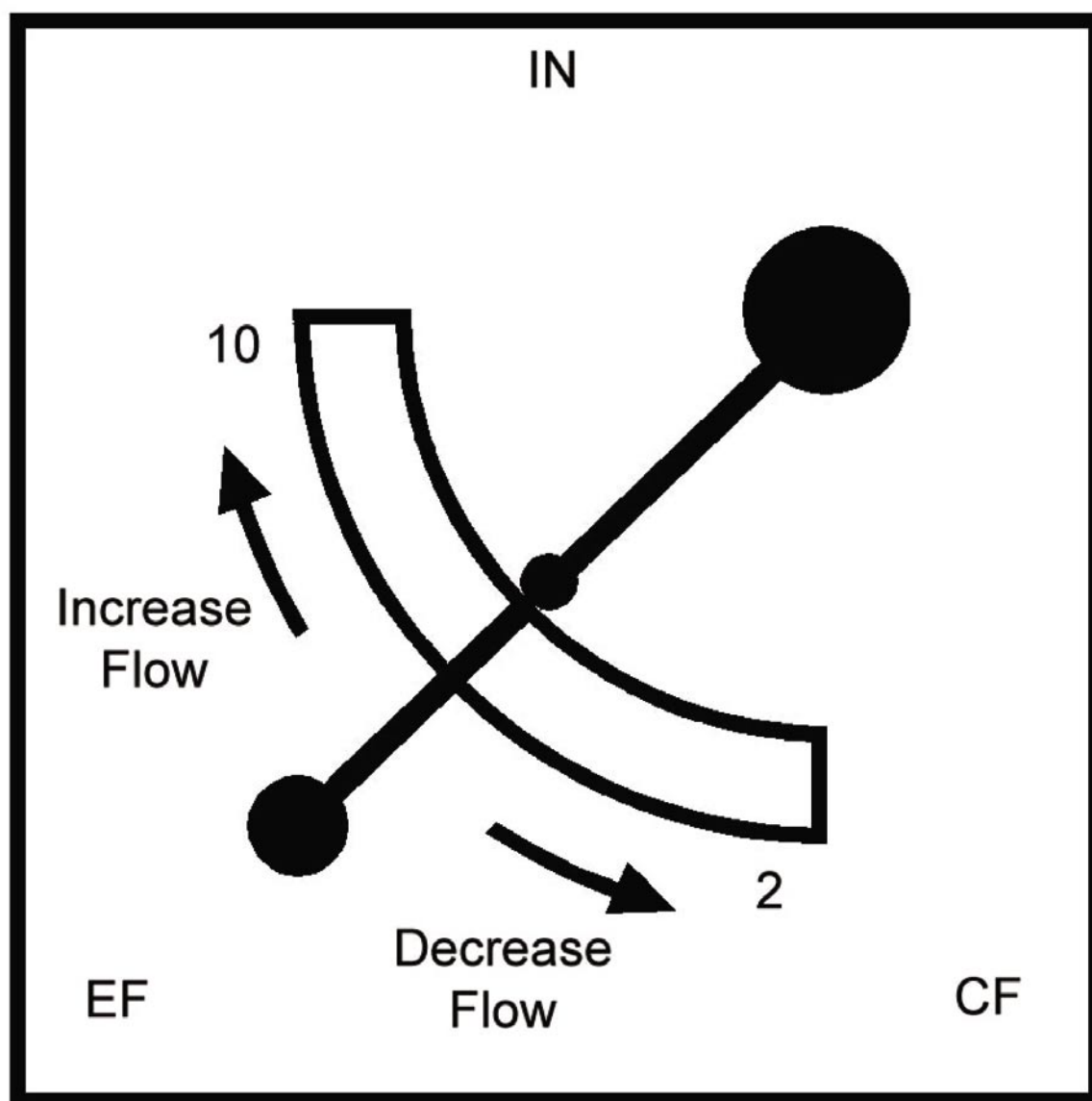
3.2 *Hydraulic Spinner Drive (Optional)*

Machines are fitted with an optional hydraulic spinner drive require an oil flow from the tractor of 45 litres/min.

To set the correct spinner speed follow this procedure:

1. Connect the two hoses to the tractor couplings - the pressure hose is the one marked IN on the spreader flow control valve.
2. Run the tractor until the oil has reached operating temperature and then increase the tractor engine to full throttle and adjust the spreader flow valve so that the spinners are running at 900RPM. (To check the spinner RPM you will need a rev counter.)
3. Once the spinners are running at 900RPM with the tractor at full throttle, the tractor engine speed should be lowered to where the spinners drop below 700RPM. (At this point make note of this lower tractor engine speed, as you can work from this engine speed up to full throttle without altering the spinners RPM. Please see following page for diagram.

FLOW CONTROL VALVE



3.3 Application Rates

Application Rates are altered by changing the feed belt speed and the hopper door opening. The feed belt speed is altered by using different sprocket combinations located on the left hand side of the machine. (Refer to the Application Rate Charts for the Drive Sprocket sizes and positions at the back of this guide.) The hopper feed door opening is adjusted by the feed door handle and held in position by the feed door disc, both located at the rear of the spreader.

3.4 Width Of Pass

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

PRODUCT	SPREAD WIDTH
Superphosphate	22 - 30m
Urea	18 - 28m
Lime/Gypsum	6 - 14m
Agras	18 - 28m

Note : To spread widths between 24-30 metres the machine must be fitted with stainless steel spinner vanes. See page 9 for more information.

4. Maintenance

4.1 Bearings

The machine is fitted with sealed self aligning bearings, however due to the abrasive nature of fertilisers, grease must be applied once daily. The spinner bearings must be greased once every four hours of operation.

4.2 V-Belts

Check tension regularly.

4.3 Recommended Tyre Pressure

14.9 x 24 25 PSI

17.5L x 24 25 PSI

(See Flotation Tyre Guide for 500/60-22.5 Inflation Tyre Pressures.)

4.4 Cleaning and Storage

After using the spreader all fertiliser should be removed from the hopper and spinner areas, then wash down the machine with a high pressure water hose.

Do not use oil or diesel near the 2 Ply feed belt.

Always store the machine under cover and in a dry place. The 2 Ply feed belt should not be exposed to prolonged periods of sunlight.

4.5 Gearbox Maintenance

The machine is fitted with a NV 5:1 gearbox specifically designed for the 840/845T.

The 5:1 gearbox is filled with grease when manufactured and then sealed. It requires no lubrication.

To reduce excess gearbox wear always engaged the feedbelt below 10 km/h.

5. ***Stainless Steel Spinner Vane Setup***

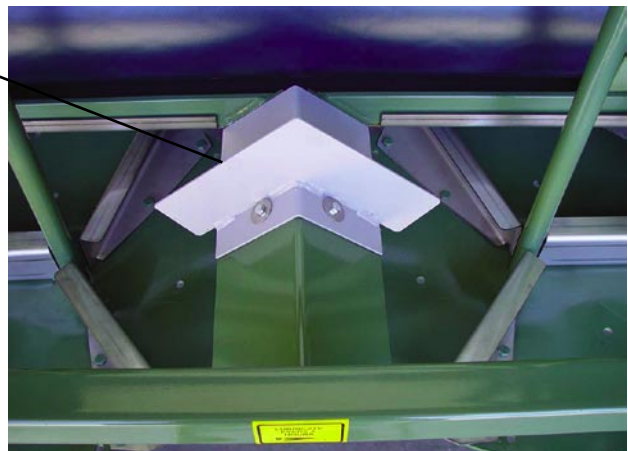
The Pitch or Angle of each spinner vane can be altered to suit different types of fertiliser applications. However a general setting to suit granulated fertiliser from Urea (700kg/m³) to Superphosphate (1150kg/m³) is to have 3 vanes on each spinner on three different angles. This done by setting each vane on different outer holes on the spinner disc - see drawing below.

NOTE : The recommended spinner speed is 900RPM.

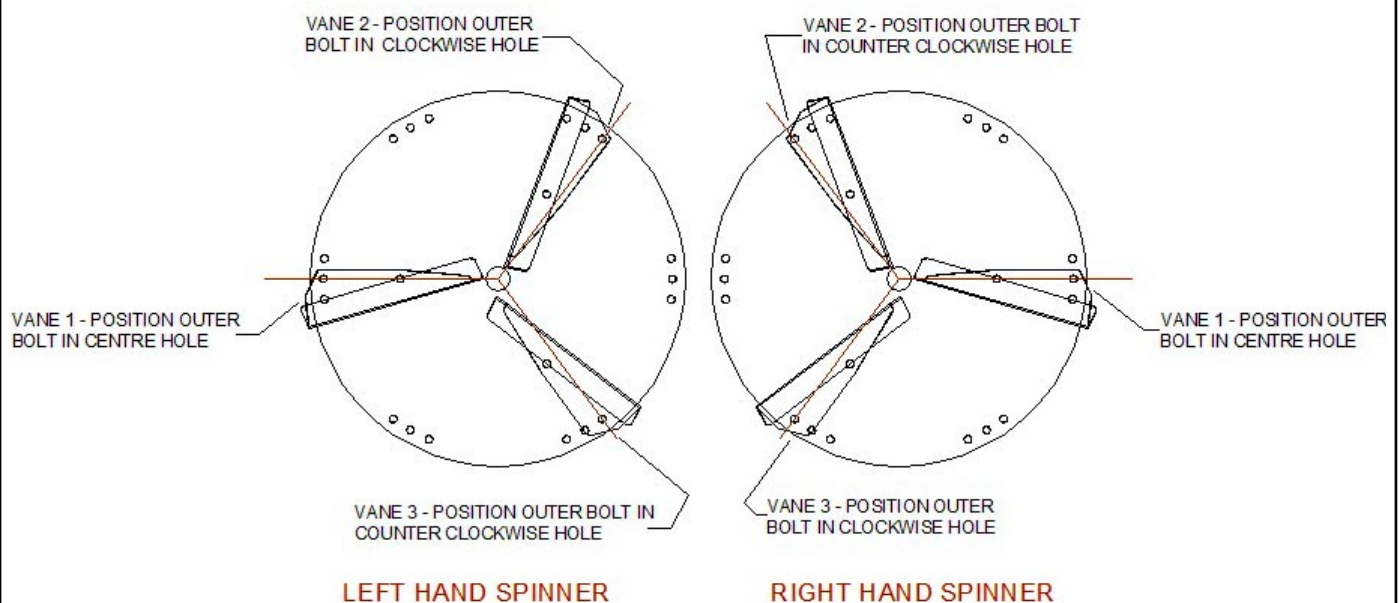
It is strongly advised that before you commence spreading you do a trial run to check the fertiliser on the ground. If the spreading is not even then the width of pass will have to be increased or decreased. Wind conditions and ground speeds also affect spread widths.

Fertiliser Deflector

For all products ensure that the fertiliser deflector is in the position shown.
(Only remove if the product being spread has large lumps.)



TOP VIEW



5.1 Adjustable Mild Steel Spinner Vanes

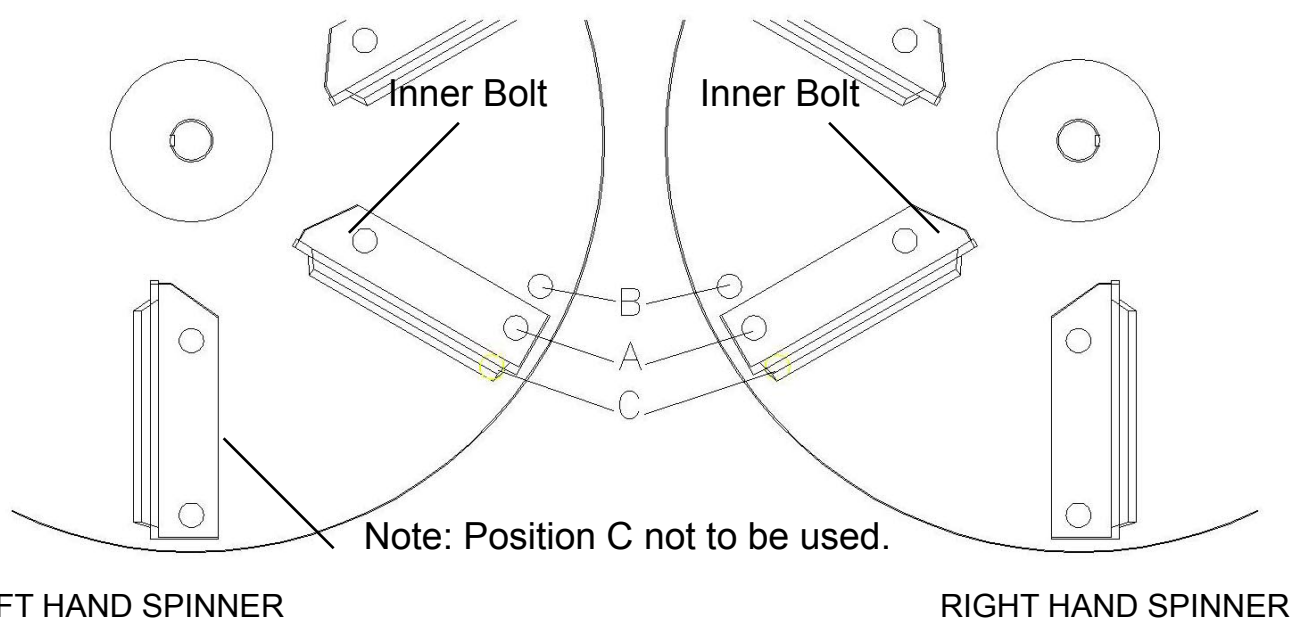
Older model Multispreads we fitted with 6 mild steel angle spinner vanes on each spinner disc. These vanes can be used to spread up to 24 metres and when spreading abrasive material like gypsum when spinner vane wear becomes a problem. The spinner vanes can be adjusted to spread light applications of granulated fertilisers and seeds as well as heavy rates of non granulated materials such as lime, gypsum and manures.

Each each vane is attached to the spinner disc by two bolts - an inner and an outer. The outer bolt can be varied to alter the angle of the spinner vanes.

For non granulated materials the fertiliser deflector chute should be removed to

Material to Spread	Outer Bolt Position	Fertiliser Deflector Chute Fitted
Granulated Fertiliser, Grain, Seeds	A	Yes
Light to medium applications of	A	Yes
heavy applications of non granulated materials such as lime gypsum and manures.	B	No

Six Vane Setup



6. *Drive Sprocket Settings*

The Machine is fitted with three sets of feed belt sprockets, these sprockets are used to alter the feed belt gearing to suit different rates and types of fertilisers.



Possible Combinations

14 Tooth Driving 50 Tooth
(Outside Set.)

21 Tooth Driving 42 Tooth
(Middle Set.)

38 Tooth Driving 28 Tooth
(Inside Set.)

7. *Application Rate Calculations*

Application rates contained in this book 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 that you are spreading.

1. Check the width of pass for the most even spread of material you will be using.
Spreading Width Guide:
 Urea - 16 - 28m Superphosphate 16 - 30m
 Lime and Gypsum 6 - 14m.
2. Obtain the circumference of the spreader tyre.
 Circumference = diameter x 3.141
example: jockey tyre diameter = 0.85
circumference = 0.85 x 3.141
= 2.67m
3. Put a small quantity of the material to be spread in the hopper and ensure that the material is packed evenly around the feed door opening.
4. Rotate the spreader tyre until the material is falling evenly off the feedbelt.
Note: the material must be falling evenly off the feedbelt to give an accurate reading.
5. Place a cardboard box or tarpaulin under the spinners to catch the material off the feedbelt.
6. Rotate the spreader wheel 10 times and then weigh the material caught off the feedbelt.
7. Multiply the distance travelled in the 10 turns of the spreader tyre by the width of pass.
example : 2.67 x 10 = 26.70 metres.
Width of pass = 16m.
Then multiply 16 x 26.70 = 427.20m²
8. Divide the weight of the material collected by the square metres of spread over 10 jockey wheel turns.
example : 5.2kg of material divided by 427.20 = 0.0121
0.0121 x 10000 to convert to kg/ha.
= 121 kg/ha.

To vary spread rates make adjustments to the drive sprocket settings and the opening of the feed door.

8. Application Rate Charts

8.1 Type Of Material - Lime, Gypsum and Manure - 1000 kg/m³

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.

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 applications)

All values are measured in kg/ha. To convert to lb/acre deduct 10% from each value.

Drive Sprocket Setting	Hopper Door opening	Width Of Pass			
		8	10	12	14
14 Tooth Driving 50 Tooth	100	528	422	352	302
	200	1055	844	704	603
	300	1583	1266	1055	904
21 Tooth Driving 42 Tooth	100	958	767	639	548
	200	1916	1533	1278	1095
	300	2874	2300	1916	1643
38 Tooth Driving 28 Tooth	100	2471	1977	1647	1412
	200	4942	3954	3295	2824
	300	7413	5930	4942	4236

8.2 Type Of Material - Agras - 950 kg/m³

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.)

All Values below are measured in kg/ha. To convert to lb/acre deduct 10% off each value.

Drive Sprocket Setting	Hopper Door opening	Width Of Pass				
		20	22	24	26	28
14 Tooth Driving 50 Tooth	20	49	44	41	38	35
	25	57	52	48	44	41
	30	67	60	57	53	49
	35	78	71	66	61	57
	40	89	81	76	70	65
	45	104	95	86	79	73
	50	115	105	96	89	83
	55	127	116	106	98	91
	60	138	126	115	106	98
	65	150	137	125	115	107
	70	161	147	134	124	115
	75	174	158	145	134	124
21 Tooth Driving 42 Tooth	40	166	151	138	127	118
	45	186	170	156	144	134
	50	207	189	173	160	149
	55	228	208	190	175	163
	60	248	227	208	192	178
	65	269	246	225	208	193
	70	290	265	242	223	207
	75	306	278	259	239	222
38 Tooth Driving 28 Tooth	40	448	407	373	344	319
	45	504	458	419	387	359
	50	560	509	466	430	399
	55	616	560	513	473	439
	60	672	611	559	516	479
	65	728	662	606	559	519
	70	784	713	652	602	559
	75	834	758	695	642	596

8.3 Type Of Material - Superphosphate - 1150 kg/m³

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.)

All Values below are measured in kg/ha. To convert to lb/acre deduct 10% off each value.

Drive Sprocket Setting	Hopper Door opening	Width Of Pass					
		20	22	24	26	28	30
14 Tooth Driving 50 Tooth	20	49	44	41	38	35	32
	25	61	55	51	47	44	40
	30	76	68	64	59	55	50
	35	88	80	74	68	63	59
	40	101	91	85	79	73	67
	45	114	104	95	88	82	76
	50	127	116	106	98	91	85
	55	140	128	117	108	100	93
	60	152	139	127	117	109	101
	65	165	151	138	127	118	110
	70	178	162	148	137	127	118
	75	175	159	146	135	125	117
21 Tooth Driving 42 Tooth	40	178	162	149	138	128	119
	45	201	183	167	154	143	134
	50	223	103	186	172	160	149
	55	245	223	205	189	176	164
	60	268	244	223	206	191	179
	65	290	264	242	223	207	193
	70	312	284	260	240	223	208
	75	320	291	267	246	228	213
38 Tooth Driving 28 Tooth	40	462	420	385	355	330	308
	45	519	473	433	400	371	346
	50	577	525	481	444	412	385
	55	635	578	529	488	453	423
	60	692	630	577	533	495	461
	65	750	683	625	577	536	500
	70	808	735	673	621	577	538
	75	864	786	720	665	618	576

8.4 Type Of Material - Urea - 750 kg/m³

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.)

All Values below are measured in kg/ha. To convert to lb/acre deduct 10% off each value.

Drive Sprocket Setting	Hopper Door opening	Width Of Pass				
		20	22	24	26	28
14 Tooth Driving 50 Tooth	15	34	31	29	26	24
	20	46	42	38	35	33
	25	58	52	48	44	41
	30	69	63	58	53	50
	35	81	74	68	62	58
	40	92	83	77	71	66
	45	104	94	86	80	74
	50	122	111	102	94	87
	55	135	123	113	104	96
	60	147	133	122	113	105
	65	159	145	133	123	114
	70	171	155	143	132	122
21 Tooth Driving 42 Tooth	30	120	109	100	92	86
	35	140	127	116	107	100
	40	159	145	133	123	114
	45	179	163	149	138	128
	50	199	181	166	153	142
	55	219	199	182	168	156
	60	239	217	199	183	170
	65	258	235	215	199	185
	70	278	253	232	214	199
38 Tooth Driving 28 Tooth	30	318	289	265	244	227
	35	371	337	309	285	265
	40	423	385	353	325	302
	45	476	433	397	366	340
	50	529	481	441	407	378
	55	582	529	485	448	416
	60	635	578	530	489	454
	65	688	625	573	529	491
	70	741	673	617	570	529