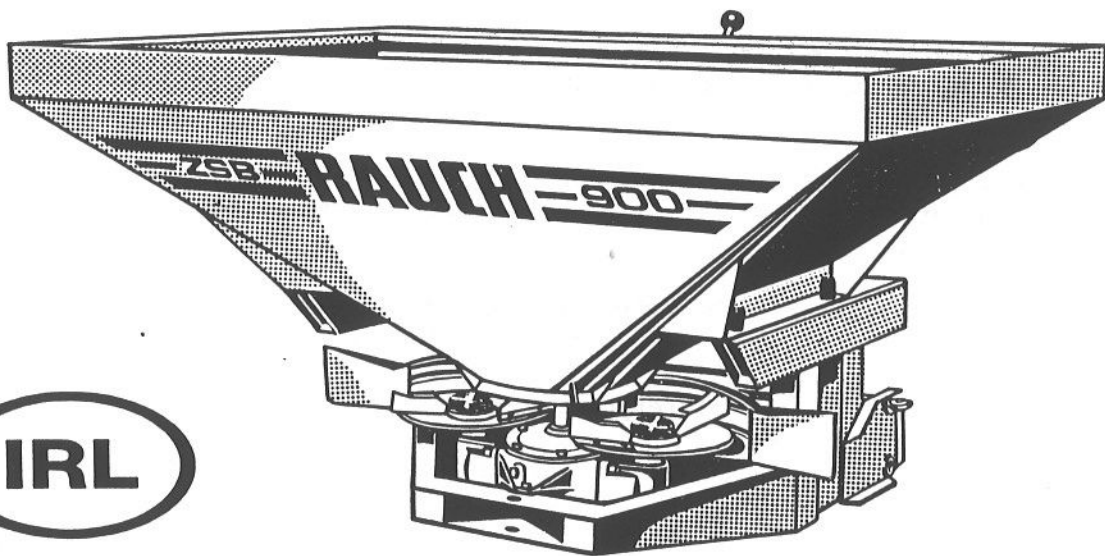


RAUCH

CALIBRATION CHART



FERTILISER SPREADER

ZSB

PLEASE READ CAREFULLY
BEFORE USING THE MACHINE



ZSB-0193-A-IRL

ACCIDENT PREVENTION AND SAFETY ISSUES

1. Please observe the safety notes contained in this calibration chart as well as these in the operating instructions and all current statutory safety and accident prevention regulations! Warning and instruction decals provide essential information concerning safe operation - observe them for your own safety!
2. Please check all nuts, bolt and other fixings for tightness, especially those on discs and disc blades.
3. Before using the machine, operators must familiarise themselves with all parts of the equipment and the function of all controls and adjustments. Finding out during operation may be too late!
4. Before using the spreader for the first time check that the tractor/spreader combination is road worthy and in a safe operating condition.
5. Make sure that the weight of the spreader does not make the tractor unstable. In many cases it will be necessary to add suitable weights to the front of the tractor so that tractor/spreader stability steering and safety (and braking and traction for 4WD tractors) is not affected by the weight of the fully laden spreader. Observe maximum axle weight and permissible gross laden weight of the tractor.
6. The maximum payload of the ZSB fertiliser spreader is 1800kg. For easy reference the densities (weight per litre) of different fertiliser types are listed in the calibration charts.
7. Before filling the hopper with fertiliser make sure the working slide is in the closed position and that the motor engine is shut-off. Pull out ignition key.
8. Keep the hopper free of any foreign matter.
9. Only start the fertiliser spreader when all safety devices and guards have been properly fitted.
10. Before adjusting, lubricating, cleaning or carrying out any operation on the machine, switch off the PTO drive, switch off the tractor engine and wait until all moving parts have come to a complete stop. Disconnect PTO shaft.
11. Keep hands feet and clothing well away from moving parts. Do not put your hands into the hopper. It contains a rotating auger! Do not wear loose clothing!
12. In the event of a mechanical, hydraulic or electrical breakdown during operation, switch off the spreader immediately. Stop tractor engine and remove the ignition key before checking and repairing damage.
13. Any defects on the PTO shaft/guards must be repaired before the fertiliser spreader is used.
14. Before leaving the tractor unattended, lower the spreader to the ground, switch off engine and remove ignition key.
15. **ATTENTION! DANGER FROM FERTILISER!**



Improper selection and use of fertilisers can have serious effects on people, animals, plants and on the environment in general.

Always select the correct fertiliser for your application. Always handle with care. Obey the fertiliser manufacturer's instructions to the letter.

THE SPREADER

es given in the calibration chart are derived from practical tests in the test spreader settings were achieved with fertiliser in perfect condition from respective manufacturer.

l particularly like to emphasize the fact that physical characteristics of fertiliser vary - even within the same type and brand - due to differences in granules, density, size of particles, texture of particles etc.

These variations in the fertiliser can influence the spreading characteristics quite markedly and, as a result, you may find that the fertiliser application rate may differ slightly from the rates predicted by the calibration charts.

The data provided in the calibration chart cannot be totally relied upon and, therefore, to ensure accuracy the machine should be recalibrated for application rate and spread pattern in every case.

ot guarantee that your fertiliser has the same spreading characteristics as fertiliser tested in our plant even if it is from the same manufacturer and of the same type. In order to achieve the desired spread pattern it may therefore be necessary to change to a different setting if flow characteristics of the fertiliser applied vary from that of the fertilisers we have tested. Careful calibration of the machine on long test runs is always more accurate than guess work.

efore recommend you to use only granular fertilisers from well known manufacturers and if possible only those fertilisers listed in our calibration charts. Some types of fertilisers be missing from the charts please let us know.

SPREADING UREA: This highly concentrated nitrogen fertiliser is, due to its importation from various sources, extremely variable in quality. Different spreader settings to those given in our charts may therefore be required. Please also note the higher wind sensitivity of urea.

pecially careful when setting the machine. Even minor adjustment errors can result in a substantial deterioration of the spread pattern. We would particularly like to point out that no liability for consequential losses due to spreading errors can be accepted (see point avoiding spreading errors).

ESSENTIAL TIPS ON SPREADING

AVOIDING SPREADING ERRORS!

The modern design and quality construction of RAUCH fertiliser spreaders, together with extensive and continuous testing in our own factory test facility, we have created the pre-requisites for perfect, precision spread patterns.

Despite the careful production of our spreaders, and even with proper use, the possibility of variations in flow rate, and even total blockages, cannot be totally excluded. Such circumstances can, for instance, be caused by the following:

- Variable consistency of fertiliser and seeds (eg. distribution of particle sizes, densities, granule shape)
- lumpy and damp fertiliser
- wind-drift
- blockage or bridging (eg. foreign material, pieces of bag, moist fertiliser....)
- humps and dips in the field
- wear of wearing components (eg. auger, agitators, disc blades, outlets).
- accident damage
- lack of cleaning or corrosion prevention
- incorrect PTO speed or tractor forward speed
- fitting of incorrect discs (or mistaking l.h. and r.h. discs)
- missing out the calibration check
- incorrect fertiliser spreader height settings (not setting spreader pitch as per calibration chart)
- loose linkage check chains or spreader not level when viewed from rear

Therefore it is very important that you check that your fertiliser spreader is functioning correctly and accurately before every job and even during the job.

All claims for consequential losses, which have not been caused to the fertiliser spreader itself, are excluded from the manufacturer's liability. This includes any liability for consequential losses due to spreading errors. Any unauthorised alterations to the spreader may result in consequential losses which are excluded from the liability of the supplier.

In case of deliberate action or gross negligence of the owner or one of his employees, and in cases where the fault of the object of supply is covered by product liability for personal or physical loss, the liability exclusion of the supplier does not apply. The exclusion does also not apply in the absence of characteristics which have expressly assured, and when these assurances were given precisely for the purpose of assuring the user against losses which have not been caused on the object of supply itself.

FAULT DIAGNOSIS AND TROUBLE SHOOTING

- **Uneven distribution of fertiliser**
 - Remove any fertiliser build up from discs, disc blades and outlet channels.
 - Check correct disc selection according to calibration chart. Check discs are correctly seated (note l.h. and r.h. side).
- **Too much fertiliser deposited around tractor tracks**
 - Check disc blades and outlet. Replace all defective components immediately.
- **Excessive fertiliser in overlapping zone**
 - The fertiliser has a coarser surface than the fertiliser tested for the calibration chart.
 - PTO speed is higher than that shown on the tractor tachometer. Have PTO shaft speed checked.
- **Spreader applies different amount on left hand and right hand sides.**
 - Check slide openings (see point 4.).
- **Fertiliser trickles from hopper with slide closed**
 - Check clearance between lower edge of agitator and hopper floor. If greater than 1 mm, shim hopper supports to compensate.
- **Chattering discs**
 - Check tightness and threads of plastic cap nuts and possibly replace.

FAULTS IN HYDRAULIC SLIDE OPERATION

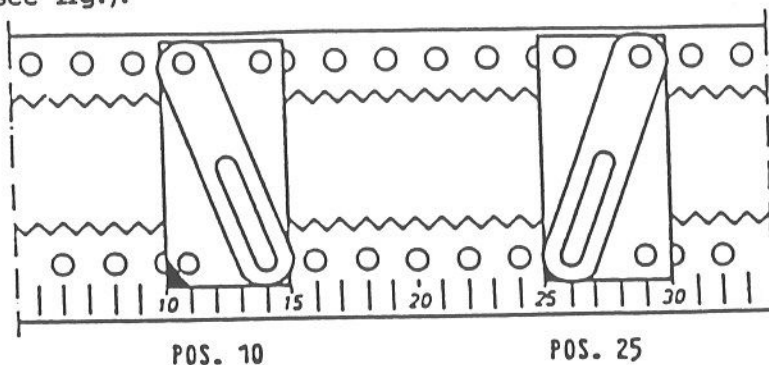
- **Lift ram fails to open.**
 - Slides too tight. Free slide, lever and joints. If necessary free leaf springs on adjusting levers through removal of rivets.
- **Lift ram opens too slowly.**
 - Oil is too thick. Drill out flow limiter to 1 mm or exchange (request to factory). In order to gain access to the flow limiter, unscrew fixing nut of pressure hose on ram inlet port (top connection in double acting rams).

SETTING THE OUTPUT

Setting the output on the ZSB spreader is made easy and safe by using the large scale.

Using the calibration chart select the scale setting corresponding to the required tractor speed and application rate. Set the end-stop on the adjuster segment to this value (grey edge on one of the 39 setting points).

When adjusting the end-stop by 1 hole, the stop position changes by 2 scale points. To adjust by 1 scale point only, turn the pull handle on the end-stop and lock into the offset holes (see fig.).



ATTENTION:

Rate setting using remote control with

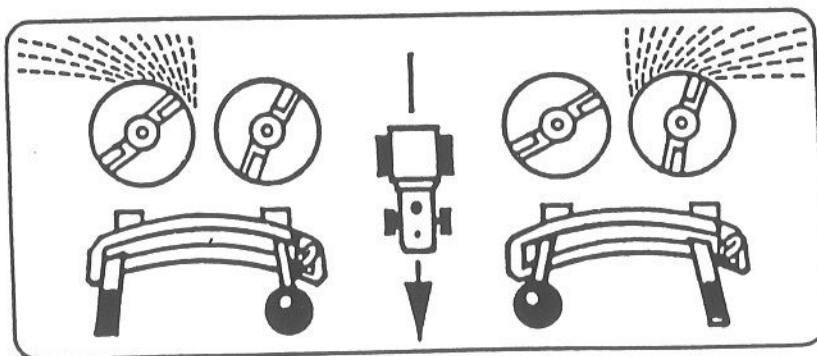
- a) 1 ram: set 1 position less
- b) 2 rams: set 2 positions less

than figure given in the calibration chart.

When the tractor has reached the required PTO speed open both slide levers to their end-stops to start spreading.

SINGLE SIDED SPREADING

When spreading to the right or left, disconnect the operating levers by pulling on the round control lever and then fully open the appropriate slide lever for the side you wish to spread.



1. Operate round control lever: spreading to the right only.
2. Operate rectangular control lever: spreading to the left only.

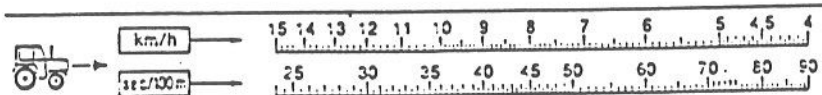
CALIBRATION CHECK

To ensure an accurate application rate we recommend that a new static calibration test is carried out each time a new type or batch of fertiliser is used. The calibration check is carried out with PTO operating and tractor standing still.

Calculation of exact tractor speed:

To calculate the tractor speed precisely, drive along a measured 100m on a field with the hopper half full and measure the time taken.

Tractor speed



Tractor speeds not shown on the above scale can be calculated using the following formula:

$$\text{Tractor speed} = \frac{360}{\text{measured time for 100m}}$$

Example: $\frac{360}{36\text{sec}} = 10\text{km per hr.}$

To determine the required output per minute:

The calibration check is usually only carried out on the left hand outlet. However the fertiliser quantity required is calculated for both outlets (total working width), ie. calculated quantities must be halved.

$$\text{kg/min} = \frac{\text{Tractor speed (km/h)} \times \text{working width in m} \times \text{application rate (kg/ha)}}{600}$$

Imperial calculation:

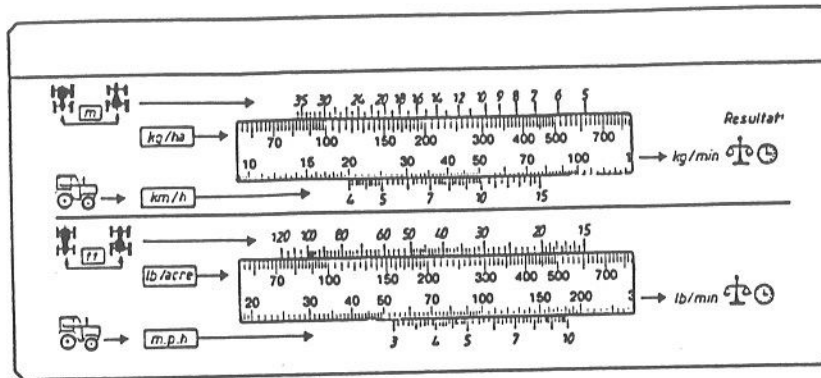
$$\text{lbs/min} = \frac{\text{Tractor speed (mph)} \times \text{working width (ft)} \times \text{appl. rate (lbs/acre)}}{495}$$

Example: $\frac{7.5\text{km/h} \times 18\text{m} \times 360\text{kg/ha}}{600} = 81\text{ kg/min}$

Therefore 40,5 kg of fertiliser must be deposited through one outlet in one minute. Several attempts may be necessary before you find the correct aperture setting (use values provided in the charts as a guideline).

Application rate figures for a selection of outputs and tractor speeds are provided in the calibration chart.

This calculation can also be carried out using a calibration slide rule (optional equipment). For instance, if you position the 200kg/ha mark against 15m on the working width scale and then read the value for kg/min off above 8km/ha on the speed scale you get 40kg/min as the required fertiliser flow rate from both outlets.



LATE-TOP DRESSING

Special discs for late-top dressing are offered as optional equipment. These have been specially developed for this type of work and the type of fertiliser used.



Do not confuse left and right discs. (in the direction of travel) The marks L (left) and R (right) are stamped on the bottom of the discs and corresponding blades. Also note the designations NA, NB, SA, SB, etc.

Precise centering of disc on hubs is essential.

Place plastic cap nuts onto disc and turn counter clockwise in order to locate the thread. Then tighten clockwise. Do not cross thread! Lightly tighten plastic cap nuts using screw driver or steel strip. Do not overtighten!



Replace defective plastic cap nuts immediately (damaged thread, cracks, breakages).

ATTENTION! Discs are fast rotating components - hence DANGER!

The nut is prevented from working loose by means of a lock-nut. Check plastic cap nut after the first hour of operation for tightness. We recommend that the thread of the steel hub is lightly greased occasionally.

Mount the fertiliser spreader on the tractor as per measurements given in the calibration chart. Obtain application rate from calibration chart for normal spreading.

If the spreader cannot be set to the height stated, the lower 3-point link pins can be set in the lower positions thereby giving 140 mm additional height.

IMPORTANT:



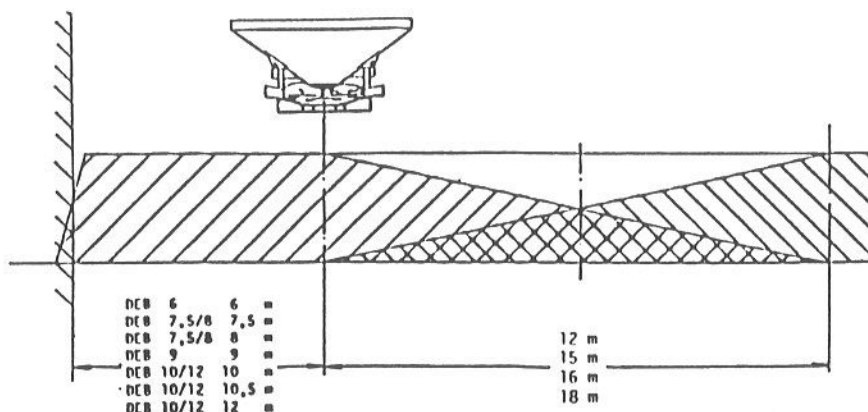
If the setting of linkage results in PTO shaft angle exceeding 25°, use a wide angle PTO shaft. Obtain application rate from calibration chart for normal spreading.

SPREADING ON HEADLANDS

In order to allow precise spreading on field headlands and boundaries, RAUCH offers boundary spreading equipment, spreading shields or headland discs as optional equipment. These avoid spreading fertiliser into hedgerows or under-application on field edges.

BOUNDARY SPREADING WITH BOUNDARY DISC "DEB" (both slides open)

For use with tramlines.



MAXIMUM PAYLOAD

The maximum payload of the ZSB spreader is 1800 kg. Any load greater than that voids your guarantee cover.

The load can be determined without a weighbridge by calculation using the density of the fertiliser. Weigh precisely 1 litre of fertiliser, giving the density in kg/litre.

Check the density of your fertiliser before loading the hopper.

The following guidelines may help:

- approx. 0,8 urea
- approx. 1,0 KAS
- approx. 1,2 NPK, Kali-fertiliser
- approx. 1,4 Kieserit, phosphate-fertiliser

The density of those fertilisers listed in the calibration chart can be found in the top field of the chart.

The following load limits must be adhered to for all ZSB spreaders:

ZSB 900:	900 l - 1800 kg	Normal loading of hopper.
ZSB 1100:	1100 l - 1800 kg	Normal loading of hopper.
	0.8 kg/l - 1.3 kg/l	Normal loading of hopper.
	1,6 kg/l	Load hopper to only 85 %.
ZSB 1500:	1500 l - 1800 kg	Normal loading of hopper.
	0.8 kg/l - 1.2 kg/l	Load hopper to just under filling edge.
	1.3 kg/l	Load hopper to only 75%.
	1.6 kg/l	
ZSB 1800:	1800 l - 1800 kg	Normal loading of hopper.
	0.8 kg/l - 1.0 kg/l	Load hopper to only 75%.
	1.3 kg/l	Load hopper to only 65%.
	1.6 kg/l	



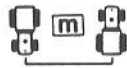
ATTENTION!

Fertiliser Density Varies With Type, And Even Different Batches Of The Same Material. It Is Therefore Absolutely Essential That The Machine To Spread The Fertiliser Is Checked, To Ensure That The Correct Setting Is Chosen To Deliver The Precise Weight Of Fertiliser In A Given Time.



The Charts In This Book Are Only Intended To Provide A Guide To The Setting Required. The Figures Were Calculated By Testing A Machine With The Aid Of A Computer Using Representative Samples Of Fertilisers Etc. This Is No Guarantee That Your Material Is Of The Same Type Or Density Or Has The Same Handling Characteristics.

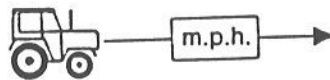
EXPLANATION OF SYMBOLS IN THE CALIBRATION CHART



Working width (m)
Distance of tramlines



R.p.m. of P.T.O.-shaft



Driving speed (m.p.h)



Required disc

NC-1. Short blade position 1
NC orange-1.

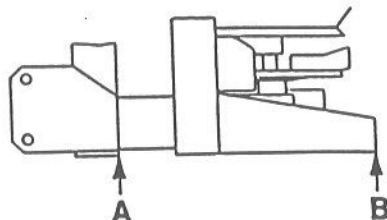
NC-2. Short blade position 2
NC orange-2.



Scale position for setting the required spreading quantity lbs/acre

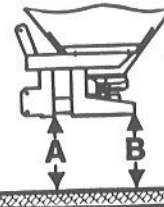


Quantity lbs/min with corresponding scale no. (calibration test)



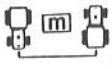





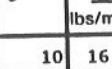
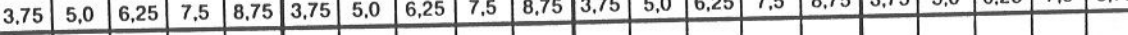
Point A and B for measuring the bottom/cereal (measured as seen on sketch).

These charts should be used as a guide only.
Variations/differences can occur in the material
being spread.

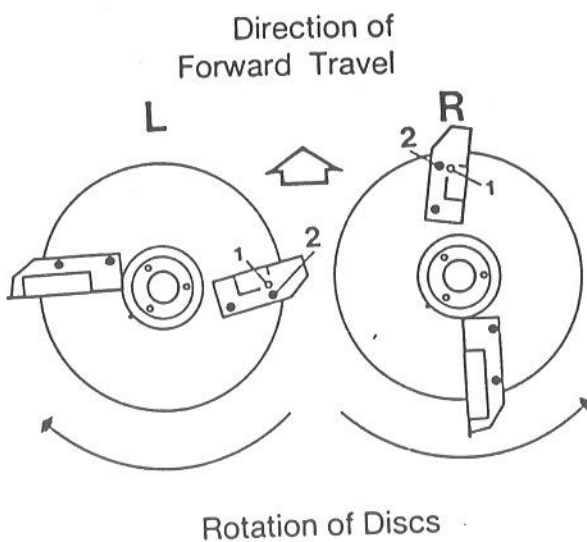


ZSB
lbs/acre

C.A.N GRASSLAND
27,5 % N, 1,08 kg/l

		9 m	12 m	15 m	18 m																
		NC Orange -2.	NC Orange -2.	NC Orange -2.	NC Orange -2.																
		400	450	540	540																
		A: 12" B: 15"	A: 12" B: 15"	A: 21 1/4" B: 23 5/8"	A: 27 5/8" B: 30"																
																					
																					
10	16.3	73	55	44	37	31															
11	24.4	110	82	66	55	47	82	62	49	41	35	66	49	40	33	28					
12	32.6	147	110	88	73	63	110	82	66	55	47	88	66	53	44	38	73	55	44	37	31
13	40.7	183	137	110	92	79	137	103	82	69	59	110	82	66	55	47	92	69	55	46	39
14	54.2	244	183	146	122	104	183	137	110	91	78	146	110	88	73	63	122	91	73	61	52
15	67.6						228	171	137	114	98	182	137	109	91	78	152	114	91	76	65
16	81.1																182	137	109	91	78

↑
OUTLET LEVER
POSITION



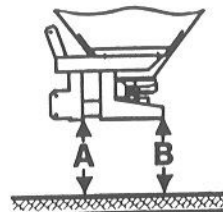
NC-Disc only

Short Blade Position:

When spreading with the outlet levers set for any of the positions given in the above chart, the short blade on both left and right hand discs should be adjusted and secured using hole position 2.

These charts should be used as a guide only.
Variations/differences can occur in the material
being spread.

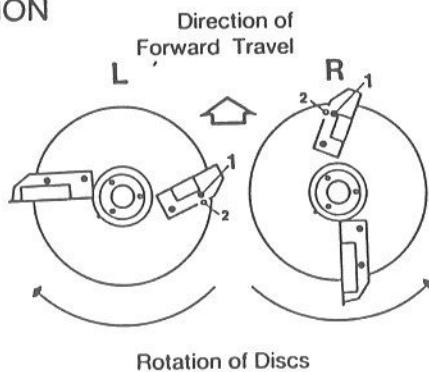
C.A.N GRASSLAND
27,5 % N, 1,08 kg/l



ZSB
lbs/acre

		9 m					12 m					15 m					18 m				
		NC Orange -1.					NC Orange -1.					NC Orange -1.					NC Orange -1.				
		400					450					540					540				
		A: 12" B: 15"					A: 12" B: 15"					A: 21 1/4" B: 23 5/8"					A: 27 5/8" B: 30"				
		m.p.h.					m.p.h.					m.p.h.					m.p.h.				
		lbs/min.					lbs/min.					lbs/min.					lbs/min.				
		3,75	5,0	6,25	7,5	8,75	3,75	5,0	6,25	7,5	8,75	3,75	5,0	6,25	7,5	8,75	3,75	5,0	6,25	7,5	8,75
15	67.6	304	228	182	152	130															
16	81.1	364	273	219	182	156	273	205	164	137	117	219	164	131	109	94					
17	97.4	438	328	263	219	188	328	246	197	164	141	263	197	158	131	113	219	164	131	109	94
18	113.7	511	383	307	256	219	383	287	230	192	164	307	230	184	153	131	256	192	153	128	110
19	130.0	584	438	351	292	250	438	329	263	219	188	351	263	210	175	150	292	219	175	146	125
20	151.8	683	512	410	341	293	512	384	307	256	219	410	307	246	205	176	341	256	205	171	146
21	173.7	781	586	469	391	335	586	439	352	293	251	469	352	281	234	201	391	293	234	195	167
22	195.6	880	660	528	440	377	660	495	396	330	283	528	396	317	264	226	440	330	264	220	188
23	219.4	986	740	592	493	423	740	555	444	370	317	592	444	355	296	254	493	370	296	247	211
24	243.2	1093	820	656	547	469	820	615	492	410	351	656	492	394	328	281	547	410	328	273	234
25	267.0	1200	900	720	600	514	900	675	540	450	386	720	540	432	360	309	600	450	360	300	257
26	293.4	1319	989	792	660	565	989	742	594	495	424	792	594	475	396	339	660	495	396	330	283
27	319.8	1438	1079	863	719	616	1079	809	647	539	462	863	647	518	431	370	719	539	431	360	308
28	346.2	1557	1168	934	778	667	1168	876	701	584	500	934	701	561	467	400	778	584	467	389	334
29	371.6						1253	940	752	627	537	1003	752	602	501	430	835	627	501	418	358
30	396.9						1339	1004	803	669	574	1071	803	643	535	459	892	669	535	446	382
31	422.2											1139	854	684	570	488	949	712	570	475	407
32	447.6											1208	906	725	604	518	1006	755	604	503	431
33	472.9																1063	797	638	532	456
34	498.2																1120	840	672	560	480

↑ **OUTLET LEVER POSITION**

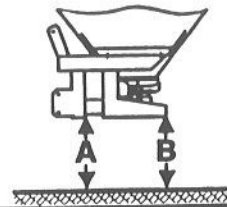


NC-Disc only

Short Blade Position:

When spreading with the outlet levers set for any of the positions given in the above chart, the short blade on both left and right hand discs should be adjusted and secured in position 1.

These charts should be used as a guide only.
 Variations/differences can occur in the material
 being spread.

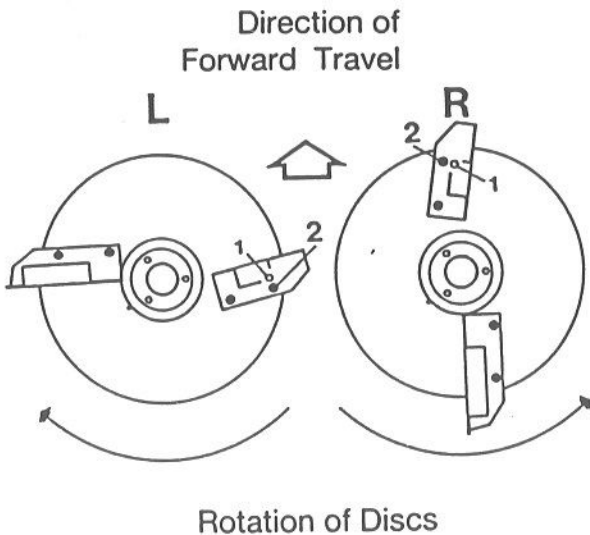


ZSB
 lbs/acre

C.A.N GOULDING
 27,5 % N, 1,04 kg/l

		9 m	12 m	15 m	18 m																
		NC Orange -2.	NC Orange -2.	NC Orange -2.	NC Orange -2.																
		450	450	540	540																
		A: 12" B: 15"	A: 12" B: 15"	A: 22" B: 23 1/2"	A: 27 1/2" B: 29"																
		→ m.p.h. →		→ m.p.h. →																	
lbs/min.		3,75	5,0	6,25	7,5	8,75	3,75	5,0	6,25	7,5	8,75	3,75	5,0	6,25	7,5	8,75	3,75	5,0	6,25	7,5	8,75
10	13.2	59	45	36	30	25															
11	21.3	96	72	57	48	41	72	54	43	36	31	57	43	34	29	25					
12	29.4	132	99	79	66	57	99	74	59	50	42	79	59	48	40	34	66	50	40	33	28
13	37.4	168	126	101	84	72	126	95	76	63	54	101	76	61	51	43	84	63	51	42	36
14	48.7	219	164	131	109	94	164	123	98	82	70	131	98	79	66	56	109	82	66	55	47
15	59.9						202	152	121	101	87	162	121	97	81	69	135	101	81	67	58
16	71.1											192	144	115	96	82	160	120	96	80	69
17	87.8																197	148	118	99	85

↑ OUTLET LEVER POSITION



NC-Disc only

Short Blade Position:

When spreading with the outlet levers set for any of the positions given in the above chart, the short blade on both left and right hand discs should be adjusted and secured using hole position 2.

These charts should be used as a guide only.
Variations/differences can occur in the material
being spread.

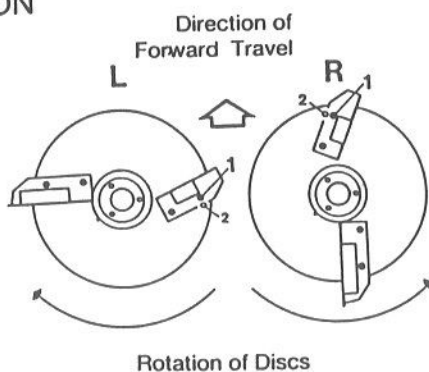


ZSB
lbs/acre

C.A.N GOULDING
27,5 % N, 1,04 kg/l

		9 m					12 m					15 m					18 m						
		NC Orange -1.																					
		450																					
		A: 12" B: 15"					A: 12" B: 14 3/8"					A: 22" B: 23 1/2"					A: 27 1/2" B: 29"						
		m.p.h. →					m.p.h. →					m.p.h. →					m.p.h. →						
		lbs/min.	3,75	5,0	6,25	7,5	8,75	3,75	5,0	6,25	7,5	8,75	3,75	5,0	6,25	7,5	8,75	3,75	5,0	6,25	7,5	8,75	
15	59.9	269	202	162	135	115																	
16	71.1	320	240	192	160	137	240	180	144	120	103												
17	87.8	395	296	237	197	169	296	222	178	148	127	237	178	142	118	102							
18	104.5	470	352	282	235	201	352	264	211	176	151	282	211	169	141	121	235	176	141	117	101		
19	121.1	545	409	327	272	233	409	306	245	204	175	327	245	196	163	140	272	204	163	136	117		
20	140.7	633	474	380	316	271	474	356	285	237	203	380	285	228	190	163	316	237	190	158	136		
21	160.2	720	540	432	360	309	540	405	324	270	232	432	324	259	216	185	360	270	216	180	154		
22	179.7	808	606	485	404	346	606	455	364	303	260	485	364	291	242	208	404	303	242	202	173		
23	202.2	909	682	546	455	390	682	511	409	341	292	546	409	327	273	234	455	341	273	227	195		
24	224.7	1010	758	606	505	433	758	568	455	379	325	606	455	364	303	260	505	379	303	253	216		
25	247.1	1111	833	667	556	476	833	625	500	417	357	667	500	400	333	286	556	417	333	278	238		
26	271.4	1220	915	732	610	523	915	686	549	458	392	732	549	439	366	314	610	458	366	305	261		
27	295.6	1329	997	798	665	570	997	748	598	498	427	798	598	479	399	342	665	498	399	332	285		
28	319.8	1438	1079	863	719	616	1079	809	647	539	462	863	647	518	431	370	719	539	431	360	308		
29	344.7						1163	872	698	581	498	930	698	558	465	399	775	581	465	388	332		
30	369.6						1246	935	748	623	534	997	748	598	499	427	831	623	499	415	356		
31	394.5											1064	798	639	532	456	887	665	532	443	380		
32	419.4											1131	849	679	566	485	943	707	566	471	404		
33	444.3																999	749	599	499	428		
34	469.2																1055	791	633	527	452		

↑ **OUTLET LEVER POSITION**

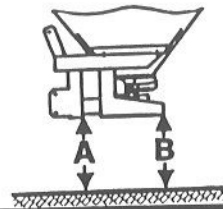


NC-Disc only

Short Blade Position:

When spreading with the outlet levers set for any of the positions given in the above chart, the short blade on both left and right hand discs should be adjusted and secured in position 1.

These charts should be used as a guide only.
 Variations/differences can occur in the material
 being spread.

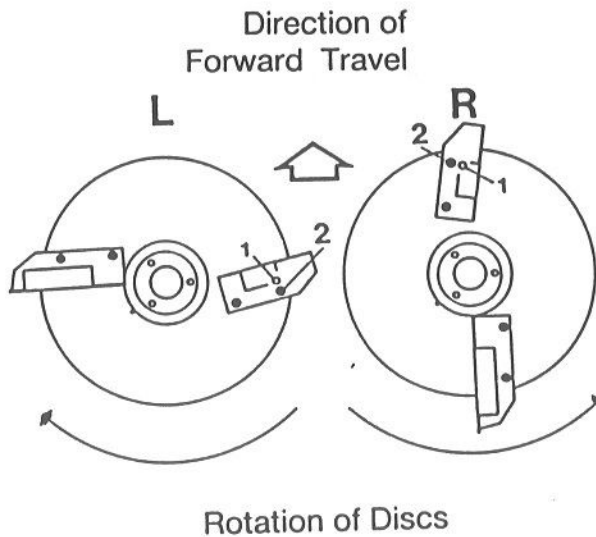


ZSB
 lbs/acre

TOPPER GRANULAR UREA IFI
 46 % N, 0,76 kg/l

		9 m	12 m	15 m	18 m																
		NC Orange -2.	NC Orange -2.	NC Orange -2.	NF Red/Blue																
		450	540	600	540																
		A: 18 1/4" B: 19 3/4"	A: 30" B: 31 1/2"	A: 30" B: 31 1/2"	A: 19 3/4" B: 16 5/8"																
		lbs/min.	3,75	5,0	6,25	7,5	8,75	3,75	5,0	6,25	7,5	8,75	3,75	5,0	6,25	7,5	8,75	3,75	5,0	6,25	7,5
9	10.8	49	36	29	24	21															
10	15.4	69	52	42	35	30															
11	22.1	99	75	60	50	43	75	56	45	37	32										
12	28.8	129	97	78	65	55	97	73	58	49	42	78	58	47	39	33	65	49	39	32	28
13	35.5	159	120	96	80	68	120	90	72	60	51	96	72	57	48	41	80	60	48	40	34
14	44.4	200	150	120	100	86	150	112	90	75	64	120	90	72	60	51	100	75	60	50	43
15	53.4						180	135	108	90	77	144	108	86	72	62	120	90	72	60	51
16	62.3											168	126	101	84	72	140	105	84	70	60

↑
 OUTLET LEVER
 POSITION

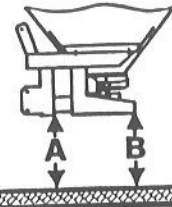


NC-Disc only

Short Blade Position:

When spreading with the outlet levers set for any of the positions given in the above chart, the short blade on both left and right hand discs should be adjusted and secured using hole position 2.

These charts should be used as a guide only.
 Variations/differences can occur in the material
 being spread.



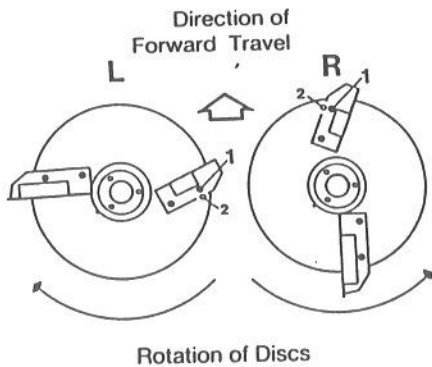
ZSB
 lbs/acre

TOPPER GRANULAR UREA IFI
 46 % N, 0,76 kg/l

		9 m	12 m					15 m					18 m										
		NC Orange -1.	NC Orange -1.					NC Orange -1.					NF Red/Blue										
		450	540					600					540										
		A: 18 1/4" B: 19 3/4"	A: 30" B: 31 1/2"					A: 30" B: 31 1/2"					A: 19 3/4" B: 16 5/8"										
		m.p.h.					m.p.h.					m.p.h.					m.p.h.						
		lbs/min.	3,75	5,0	6,25	7,5	8,75	3,75	5,0	6,25	7,5	8,75	3,75	5,0	6,25	7,5	8,75	3,75	5,0	6,25	7,5	8,75	
15	53.4	240	180	144	120	103																	
16	62.3	280	210	168	140	120	210	158	126	105	90												
17	74.7	336	252	202	168	144	252	189	151	126	108	202	151	121	101	86	168	126	101	84	72		
18	87.1	392	294	235	196	168	294	220	176	147	126	235	176	141	118	101	196	147	118	98	84		
19	99.6	448	336	269	224	192	336	252	201	168	144	269	201	161	134	115	224	168	134	112	96		
20	114.5	515	386	309	258	221	386	290	232	193	166	309	232	185	155	132	258	193	155	129	110		
21	129.5	582	437	349	291	250	437	328	262	218	187	349	262	210	175	150	291	218	175	146	125		
22	144.5	650	487	390	325	278	487	365	292	244	209	390	292	234	195	167	325	244	195	162	139		
23	162.2	729	547	438	365	313	547	410	328	273	234	438	328	263	219	188	365	273	219	182	156		
24	179.9	809	607	485	404	347	607	455	364	303	260	485	364	291	243	208	404	303	243	202	173		
25	197.6	888	666	533	444	381	666	500	400	333	286	533	400	320	267	228	444	333	267	222	190		
26	216.1	972	729	583	486	416	729	547	437	364	312	583	437	350	291	250	486	364	291	243	208		
27	234.6						791	593	475	396	339	633	475	380	316	271	527	396	316	264	226		
28	253.1						854	640	512	427	366	683	512	410	341	293	569	427	341	285	244		
29	272.4											735	551	441	367	315	612	459	367	306	262		
30	291.7											787	590	472	394	337	656	492	394	328	281		
31	311.1																699	525	420	350	300		
32	330.4																743	557	446	371	318		



OUTLET LEVER
 POSITION

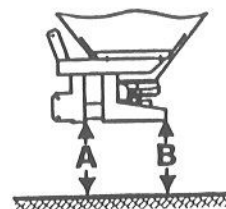


NC-Disc only

Short Blade Position:

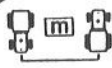









When spreading with the outlet levers set for any of the positions given in the above chart, the short blade on both left and right hand discs should be adjusted and secured in position 1.

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Variations/differences can occur in the material
being spread.

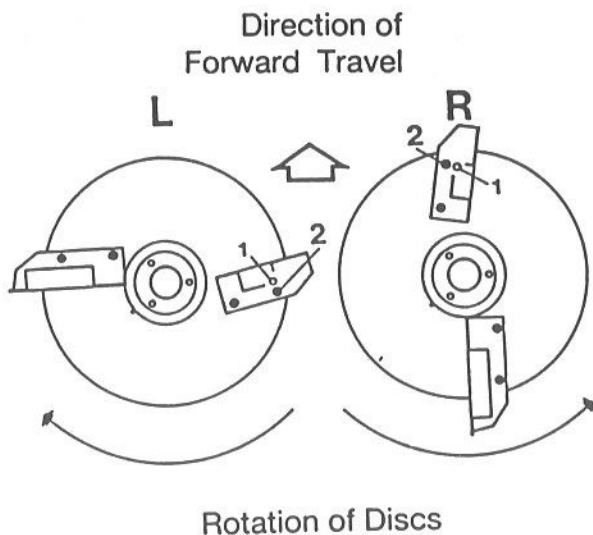


ZSB
lbs/acre

PRILLED NET UREA IFI
46 % N, 0,76 kg/l

		9 m	12 m	15 m																		
		NC Orange -2.	NC Orange -2.	NH Blue																		
		540	540	600																		
		A: 19 3/4" B: 18 1/4"	A: 30" B: 31 1/2"	A: 27 1/2" B: 27 1/2"																		
		 → m.p.h. →  → m.p.h. →  → m.p.h. →  → m.p.h. →																				
	lbs/min.	3,75	5,0	6,25	7,5	8,75	3,75	5,0	6,25	7,5	8,75	3,75	5,0	6,25	7,5	8,75	3,75	5,0	6,25	7,5	8,75	
	9	18.5	83	62	50	42	36															
	10	24.2	109	82	65	54	47	82	61	49	41	35										
	11	32.6	147	110	88	73	63	110	82	66	55	47	88	66	53	44	38					
	12	41.0	184	138	111	92	79	138	104	83	69	59	111	83	66	55	47					
	13	49.3						166	125	100	83	71	133	100	80	67	57					
	14	60.1											162	122	97	81	70					

↑
OUTLET LEVER
POSITION

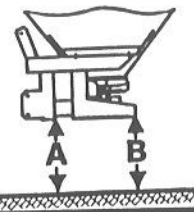


NC-Disc only

Short Blade Position:

When spreading with the outlet levers set for any of the positions given in the above chart, the short blade on both left and right hand discs should be adjusted and secured using hole position 2.

These charts should be used as a guide only.
 Variations/differences can occur in the material
 being spread.

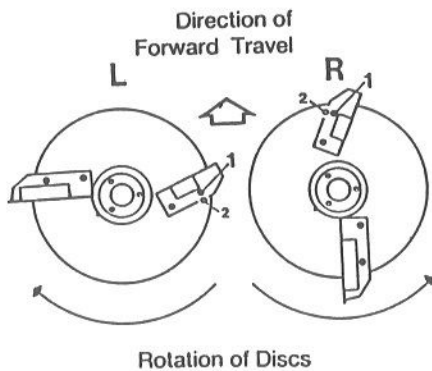


ZSB
 lbs/acre

PRILLED NET UREA IFI
 46 % N, 0,76 kg/l

		9 m					12 m					15 m									
		NC Orange -1.					NC Orange -1.					NH Blue									
		540					540					540									
		A: 19 3/4" B: 19 3/4"					A: 30" B: 31 1/2"					A: 27 1/2" B: 27 1/2"									
		m.p.h.					m.p.h.					m.p.h.					m.p.h.				
		3,75	5,0	6,25	7,5	8,75	3,75	5,0	6,25	7,5	8,75	3,75	5,0	6,25	7,5	8,75	3,75	5,0	6,25	7,5	8,75
13	49.3	222	166	133	111	95															
14	60.1	270	203	162	135	116	203	152	122	101	87										
15	70.9	319	239	191	159	137	239	179	144	120	103	191	144	115	96	82					
16	81.7	367	276	220	184	157	276	207	165	138	118	220	165	132	110	94					
17	96.6	434	326	261	217	186	326	244	196	163	140	261	196	156	130	112					
18	111.5	501	376	301	251	215	376	282	226	188	161	301	226	181	150	129					
19	126.4	569	426	341	284	244	426	320	256	213	183	341	256	205	171	146					
20	144.2	648	486	389	324	278	486	365	292	243	208	389	292	233	195	167					
21	162.0	728	546	437	364	312	546	410	328	273	234	437	328	262	218	187					
22	179.7	808	606	485	404	346	606	455	364	303	260	485	364	291	242	208					
23	200.2	900	675	540	450	386	675	506	405	338	289	540	405	324	270	232					
24	220.7		744	595	496	425	744	558	447	372	319	595	447	357	298	255					
25	241.2						813	610	488	407	349	610	488	390	325	279					
26	262.5						885	664	531	443	379	664	531	425	354	304					
27	283.9											766	575	460	383	328					
28	305.3											824	618	494	412	353					

↑ OUTLET LEVER POSITION

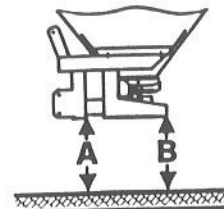


NC-Disc only

Short Blade Position:

When spreading with the outlet levers set for any of the positions given in the above chart, the short blade on both left and right hand discs should be adjusted and secured in position 1.

These charts should be used as a guide only.
Variations/differences can occur in the material
being spread.

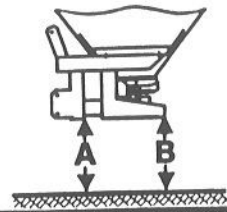


ZSB
lbs/acre

NPK ALBATROS
18-6-12+6 % S, 1,02 kg/l

		9 m					12 m					15 m					18 m						
		NC Orange -1.					NC Orange -1.					NC Orange -1.					NC Orange -1.						
		540					540					600					540						
		A: 15 3/4" B: 13 3/8"					A: 23 5/8" B: 20 1/2"					A: 27 1/2" B: 24 3/8"					A: 19 3/4" B: 20 1/2"						
		m.p.h. →					m.p.h. →					m.p.h. →					m.p.h. →						
		lbs/min.	3,75	5,0	6,25	7,5	8,75	3,75	5,0	6,25	7,5	8,75	3,75	5,0	6,25	7,5	8,75	3,75	5,0	6,25	7,5	8,75	
12	32.4	146	109	87	73	62																	
13	40.1	180	135	108	90	77	135	101	81	68	58												
14	52.3	235	176	141	118	101	176	132	106	88	76	141	106	85	71	60	118	88	71	59	50		
15	64.5	290	217	174	145	124	217	163	130	109	93	174	130	104	87	75	145	109	87	72	62		
16	76.7	345	259	207	172	148	259	194	155	129	111	207	155	124	103	89	172	129	103	86	74		
17	92.4	415	311	249	208	178	311	234	187	156	133	249	187	150	125	107	208	156	125	104	89		
18	108.1	486	364	292	243	208	364	273	219	182	156	292	219	175	146	125	243	182	146	121	104		
19	123.8	557	417	334	278	239	417	313	250	209	179	334	250	200	167	143	278	209	167	139	119		
20	143.3	644	483	387	322	276	483	363	290	242	207	387	290	232	193	166	322	242	193	161	138		
21	162.8	732	549	439	366	314	549	412	330	275	235	439	330	264	220	188	366	275	220	183	157		
22	182.4	820	615	492	410	351	615	461	369	308	264	492	369	295	246	211	410	308	246	205	176		
23	205.3	923	692	554	462	396	692	519	415	346	297	554	415	332	277	237	462	346	277	231	198		
24	228.2	1026	770	616	513	440	770	577	462	385	330	616	462	369	308	264	513	385	308	257	220		
25	251.1	1129	847	677	565	484	847	635	508	423	363	677	508	406	339	290	565	423	339	282	242		
26	274.0	1232	924	739	616	528	924	693	554	462	396	739	554	444	370	317	616	462	370	308	264		
27	296.9	1335	1001	801	668	572	1001	751	601	501	429	801	601	481	401	343	668	501	401	334	286		
28	319.8	1438	1079	863	719	616	1079	809	647	539	462	863	647	518	431	370	719	539	431	360	308		
29	342.9	1542	1157	925	771	661	1157	867	694	578	496	925	694	555	463	397	771	578	463	386	330		
30	366.1	1646	1235	988	823	705	1235	926	741	617	529	988	741	593	494	423	823	617	494	412	353		
31	389.2						1313	984	788	656	563	1050	788	630	525	450	875	656	525	438	375		
32	412.3						1391	1043	834	695	596	1112	834	667	556	477	927	695	556	464	397		
33	435.5											1175	881	705	587	504	979	734	587	490	420		
34	458.6											1237	928	742	619	530	1031	773	619	516	442		
35	481.7																1083	812	650	542	464		

These charts should be used as a guide only.
 Variations/differences can occur in the material
 being spread.



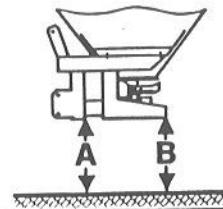
ZSB
 lbs/acre

NPK PASTURE SWARD IFI
 27-2,5-5, 0,97 kg/l

		9 m	12 m	12 m																		
		NC Orange -1.	NC Orange -1.	NC Orange -1.																		
		450	540	540																		
		A: 12" B: 15"	A: 23 5/8" B: 25 1/4"	A: 23 1/2" B: 23 1/2"																		
	 lbs/min.	→ m.p.h. →					→ m.p.h. →					→ m.p.h. →					→ m.p.h. →					
		3,75	5,0	6,25	7,5	8,75	3,75	5,0	6,25	7,5	8,75	3,75	5,0	6,25	7,5	8,75	3,75	5,0	6,25	7,5	8,75	
11	24.9	112	84	67	56	48																
12	32.1	144	108	87	72	62	108	81	65	54	46											
13	39.3	177	133	106	88	76	133	99	80	66	57											
14	50.7	228	171	137	114	98	171	128	103	86	73											
15	62.2	279	210	168	140	120	210	157	126	105	90											
16	73.6	331	248	198	165	142	248	186	149	124	106											
17	89.0	400	300	240	200	171	300	225	180	150	129											
18	104.4	469	352	282	235	201						352	264	211	176	151						
19	119.8	539	404	323	269	231						404	303	242	202	173						
20	140.2	631	473	378	315	270						473	355	284	236	203						
21	160.6	722	542	433	361	310						542	406	325	271	232						
22	181.1	814	611	488	407	349						611	458	366	305	262						
23	202.6	911	683	547	456	391						683	513	410	342	293						
24	224.2	1008	756	605	504	432						756	567	454	378	324						
25	245.8	1105	829	663	553	474						829	622	497	415	355						
26	270.8	1218	913	731	609	522						913	685	548	457	391						
27	295.7	1330	997	798	665	570						997	748	598	499	427						
28	320.7	1442	1082	865	721	618						1082	811	649	541	464						
29	343.3											1158	868	695	579	496						
30	365.9											1234	925	740	617	529						

These charts should be used as a guide only.
 Variations/differences can occur in the material
 being spread.

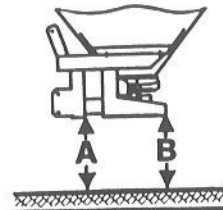
NPK PASTURE SWARD IFI
 27-2,5-5, 0,97 kg/l



ZSB
 lbs/acre

15 m		15 m					18 m					18 m										
NC Orange -1.		NC Orange -1.					NC Orange -1.					NC Orange -1.										
540		540					600					600										
A: 27 1/2" B: 29 1/8"		A: 27 1/2" B: 27 1/2"					A: 27 5/8" B: 30"					A: 27 1/2" B: 27 1/2"										
lbs/min.	m.p.h.					m.p.h.					m.p.h.					m.p.h.						
	3,75	5,0	6,25	7,5	8,75	3,75	5,0	6,25	7,5	8,75	3,75	5,0	6,25	7,5	8,75	3,75	5,0	6,25	7,5	8,75		
14	50.7	137	103	82	68	59																
15	62.2	168	126	101	84	72					140	105	84	70	60							
16	73.6	198	149	119	99	85					165	124	99	83	71							
17	89.0	240	180	144	120	103					200	150	120	100	86							
18	104.4	282	211	169	141	121					235	176	141	117	101							
19	119.8	323	242	194	162	139					269	202	162	135	115							
20	140.2						378	284	227	189	162					315	236	189	158	135		
21	160.6						433	325	260	217	186					361	271	217	181	155		
22	181.1						488	366	293	244	209					407	305	244	204	174		
23	202.6						547	410	328	273	234					456	342	273	228	195		
24	224.2						605	454	363	302	259					504	378	302	252	216		
25	245.8						663	497	398	332	284					553	415	332	276	237		
26	270.8						731	548	438	365	313					609	457	365	304	261		
27	295.7						798	598	479	399	342					665	499	399	332	285		
28	320.7						865	649	519	433	371					721	541	433	361	309		
29	343.3						926	695	556	463	397					772	579	463	386	331		
30	365.9						987	740	592	494	423					823	617	494	411	353		
31	388.4						1048	786	629	524	449					873	655	524	437	374		
32	411.0						1109	832	665	554	475					924	693	554	462	396		
33	433.6															975	731	585	487	418		
34	456.2															1026	769	615	513	440		

These charts should be used as a guide only.
 Variations/differences can occur in the material
 being spread.



ZSB
 lbs/acre

PK ALBATROS
 0-7-30, 1,1 kg/l

		9 m					12 m					15 m					18 m						
		NC Orange -1.					NC Orange -1.					NC Orange -1.					NC Orange -1.						
		540					540					600					540						
		A: 15 3/4" B: 13 3/8"					A: 23 5/8" B: 20 1/2"					A: 27 1/2" B: 24 3/8"					A: 15 3/4" B: 16 1/2"						
		m.p.h. →					m.p.h. →					m.p.h. →					m.p.h. →						
		lbs/min.	3,75	5,0	6,25	7,5	8,75	3,75	5,0	6,25	7,5	8,75	3,75	5,0	6,25	7,5	8,75	3,75	5,0	6,25	7,5	8,75	
13	40.1	180	135	108	90	77																	
14	53.0	238	179	143	119	102	179	134	107	89	77												
15	65.9	296	222	178	148	127	222	167	133	111	95	178	133	107	89	76	148	111	89	74	64		
16	78.9	355	266	213	177	152	266	199	160	133	114	213	160	128	106	91	177	133	106	89	76		
17	94.6	425	319	255	213	182	319	239	191	159	137	255	191	153	128	109	213	159	128	106	91		
18	110.3	496	372	298	248	213	372	279	223	186	159	298	223	179	149	128	248	186	149	124	106		
19	126.0	567	425	340	283	243	425	319	255	212	182	340	255	204	170	146	283	212	170	142	121		
20	146.8	660	495	396	330	283	495	371	297	248	212	396	297	238	198	170	330	248	198	165	141		
21	167.7	754	566	452	377	323	566	424	339	283	242	452	339	271	226	194	377	283	226	189	162		
22	188.5	848	636	509	424	363	636	477	382	318	273	509	382	305	254	218	424	318	254	212	182		
23	212.5	955	717	573	478	409	717	537	430	358	307	573	430	344	287	246	478	358	287	239	205		
24	236.4	1063	797	638	532	456	797	598	478	399	342	638	478	383	319	273	532	399	319	266	228		
25	260.3	1171	878	702	585	502	878	659	527	439	376	702	527	421	351	301	585	439	351	293	251		
26	285.0	1282	961	769	641	549	961	721	577	481	412	769	577	461	384	330	641	481	384	320	275		
27	309.7	1393	1044	836	696	597	1044	783	627	522	448	836	627	501	418	358	696	522	418	348	298		
28	334.4	1503	1128	902	752	644	1128	846	677	564	483	902	677	541	451	387	752	564	451	376	322		
29	360.9	1623	1217	974	811	696	1217	913	730	609	522	974	730	584	487	417	811	609	487	406	348		
30	387.4	1742	1307	1045	871	747	1307	980	784	653	560	1045	784	627	523	448	871	653	523	436	373		
31	414.0						1396	1047	838	698	598	1117	838	670	558	479	931	698	558	465	399		
32	440.5						1486	1114	891	743	637	1189	891	713	594	509	990	743	594	495	424		
33	457.9											1235	927	741	618	529	1030	772	618	515	441		
34	475.3											1282	962	769	641	550	1069	802	641	534	458		
35	492.7											1329	997	798	665	570	1108	831	665	554	475		
36	510.1																1147	860	688	573	492		