Great Plains
Manufacturing, Inc.
www.greatplainsmfg.com

Sowing and Fertilizer Rate Tables for Pneumatic Drills with Variable Rate Gearbox (VRG) Dosing Units, models: NTA607 or NTA607HD (SPARTAN 607), NTA907 or NTA907HD (SPARTAN 907), and ADC2350 or ADC2350B Air Drill Carts with all compatible air drill implements

The following pages are to assist in the proper setting of seeding and fertilizer rates for the pneumatic drill.

To assure the most accurate application rates it is recommended that the pneumatic drill be calibrated for the desired materials at the time of planting.

ORIGINAL INSTRUCTIONS

EN

Printed 2012-01-03 167-085B-ENG

Table of Contents

Introduction

This manual is your guide to drill adjustments for achieving specific seed population and fertilizer density targets.

Although some setup/adjustment material herein is repeated from the cart and drill Operator Manuals, you need to be thoroughly familiar with cart and drill operations and adjustments before applying the data from this Sowing and Fertilizer Rate Tables Manual.

Drill Models Covered

This manual covers Great Plains pneumatic drill/cart models[a] with meters (dosing units) controlled by one or two Zero-Max® Variable Rate Gearboxes (VRG). This includes the following models. Not all models are available in all locales.

Drills used with ADC2350B Air Cart:

3N4010HDA	3-Section 12m Heavy Duty Pneumatic Drill

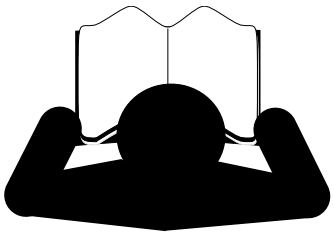
Drills used with ADC2350 Air Cart

CTA4000	2007+ 12m Conventional Till Pneumatic Drill
CTA4000HD	CTA4000 Heavy Duty opener
NTA3010	2007+ 30ft No-Till Air Drill
NTA3510	2007+ 35ft No-Till Air Drill

Integrated Pneumatic Drills

NTA607	6m No-Till Pneumatic Drill
NTA607HD	6m No-Till Heavy-Duty Pneumatic Drill
NTA907	9m No-Till Pneumatic Drill
NTA907HD	9m No-Till Heavy-Duty Pneumatic Drill

The rate tables are independent of drill width and row spacing. With ADC2350/B carts, setup sprockets on the air cart compensate for differences between the drill models. If the air cart was ordered for use with a different drill model than actually used, check the setup sprocket configuration. See the air cart Operator Manual.



Setting Planting Rate

There are four steps to obtaining the target number of seeds, or fertilizer kg, per hectare:

1. *Enter seed monitor setup information*
   Refer to your material containers or material supplier. The tables include default values.
2. *Set Final Drive Range on seed meter*
   Unusual rates may require an optional meter flute (“stars”) kit installation.
3. *Set Variable Rate Gearbox*.
4. *Calibr*ate
   See “**Meter Calibration**” on page 7.

   Calibrate each meter separately, even if the hoppers contain the same material.

Note: Units of Measure:
Most values in U.S. customary units have been omitted from this edition of the manual. If you prefer a manual that includes dual units of measure, or includes information specific to North American air drill models NTA2007/HD or NTA3007/HD, request or down-load a copy of manual part number 167-085B.

a. For Models NTA2007, NTA2007HD, NTA3007 or NTA3007HD, see manual 167-085B. Non-VRG models not covered include 3N4010HDF, 3N4010HDP, ADC0295, ADI334, ADI345, ADI434, ADI445, ADC1150, ADC2200, ADC2250, CDA600, NTA1000, NTA1300 and NTA2000.

Setting Meter Rate

Check Flute Shaft Configuration

Refer to Figure 2
(which depicts a single flute "star" with its halves, a single star mated, two stars staggered, and a filler)
Know your "stars" (dosing roller) setup. If your air cart has never been changed from factory standard, you have meter flute shafts with two deep-flute "stars" ① (4 halves) per outlet. How many "stars" you have determines which rate sowing table to use.

Refer to Figure 3 (depicting an inspection from below meter)
If the configuration is not known, inspect the flute shaft from the hopper lid (if hopper empty), or from below the meter, with the calibration door fully open. It is not necessary to remove the shaft. Inspect the flutes ①, and filler rings ③ at active outlets.

On a standard "2 star" shaft, each seed drop outlet contains two flute sets (4 halves), each pair staggered slightly from the next. Unused outlets are fully blocked by filler rings ④.

On an optional "3 star" shaft, each outlet contains 3 flute sets of the deep style ①.

On an optional "4 star" shaft, each outlet contains 4 flute sets of the deep style ①, with no fillers between adjacent drops.

On an optional Small Seeds shaft, each outlet contains one set of narrow, shallow flutes ②.

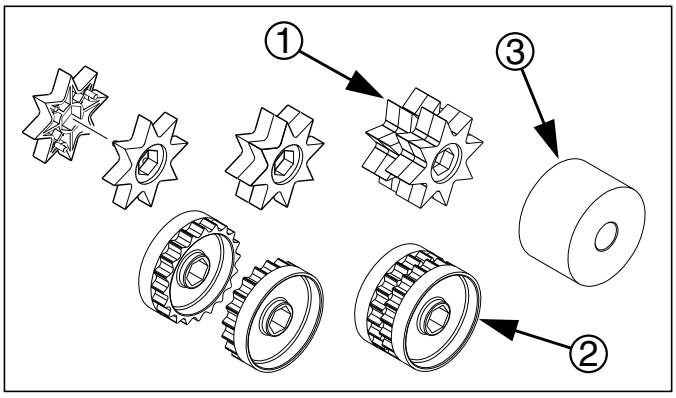


Figure 2 32400
Flute Stars and Filler

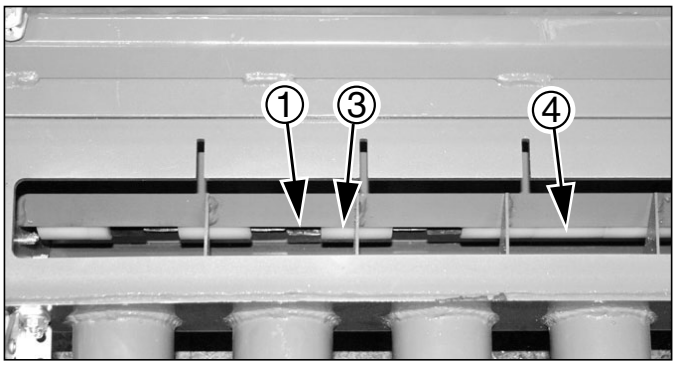


Figure 3 26426
Checking Flute Shafts

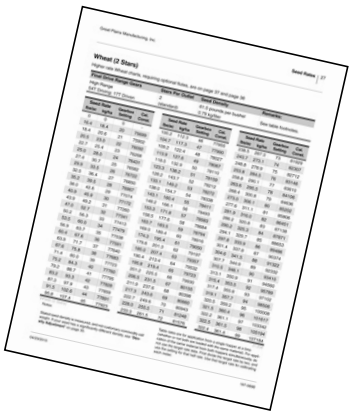
Find Your Table and Rate

Standard "2 star" rates begin on page 13. "3 star", "4 star" and Small Seeds rates are in the Appendix, starting on page 39.

If you are planning to apply two different materials (such as seed and fertilizer) in each hopper, perform the setup steps separately for each hopper, as the configurations (including stars) may be completely different.

1. Confirm that the table is for the material and star configuration you have.
2. Find your target population or application rate.

Note: If you have a choice of tables, for most consistent results, pick one that results in a variable rate gearbox value between 30 and 70.



Monitor Material Configuration

The DICKEY-john® IntelliAg® monitor reads meter shaft rpm and can report Kg/ha planted.

In order to report accurately, the monitor requires several user inputs. Inputs that rarely change were entered during cart setup (see "**Setup Seed Monitor for Air Drill**" in the air cart Operator's Manual). Inputs specific to particular materials (seed or fertilizer) need to be entered when those materials are first used, and when changed.

See the DICKEY-john® Quick Start guide and Air Cart Control Operator's Manuals for more detailed instructions. This Rate manual section covers only monitor information needed for sowing calibration.

1. Material Configuration Setup Screen for Seeds

"**Type**" - This must be set to "Gran Seed Monitor" to configure for seeds.

"**Density Units**" - In metric mode this is always kg/litre.

"**Density**" - This is the density of seed being planted. Obtain this information from the material container/ supplier. If unknown, use the value specified in the rate chart.

"**Total Number of Towers**" - This is the number of outlets used per meter box (typically 4, 5 or 6).

"**Calibration Constant**" - This is the number listed in the seed rate charts for the rate you are planting or the number obtained from running the calibration routine for your specific seed.

Note: Always enter **Density Units** before entering the **Density** value. Changing the value of **Density Units** causes the value for **Density** to be re-computed

2. Material Configuration Setup Screen for Fertilizer

"**Type**" - This must be set to "Gran Fert Monitor" to configure for fertilizer.

"**Density**" - Enter the density of Fertilizer being applied, in kg-per-litre. Obtain this information from the material container/supplier. If unknown, use the value specified in the rate chart.

"**Total Number of Towers**" - This is the number of outlets used per meter box (dosing unit).

"**Calibration Constant**" - This is the number listed in the seed rate charts for the rate you are planting or the number obtained from running the calibration routine for your specific fertilizer.

3.  Channel Setup Screen

Channel 1 setups are for the front hopper.
Channel 2 setups are for the rear hopper.

"**Type**" - Set this to either "Gran Seed Monitor" or "Gran Fert Monitor" based on the type of material in each hopper.

"**Material Name**" - Choose the name of the material configured for each channel in steps 1 and 2 above.

"**Sensor Constant**" - [360]

"**Gear Ratio**" - [1]

"**Channel Width**" - is your Implement Width (swath) in cm. Precise row/swath data is found in the air cart or implement Operator Manuals.

If the monitor inputs are correctly entered, the monitor is a handy tool for fine-tuning the variable rate gearbox setting. If the rate reported by the monitor does not match the target planting rate, rotate the crank to adjust the variable rate gearbox control arm slightly so as to achieve the target planting rate.

Consult the DICKEY-john® manual for how to configure reporting and alerts.

Meter Rate Adjustment

Seed rate is determined by:

- seed meter Final Drive Range gearing
- Variable Rate Gearbox setting

The Sowing Tables are based on cleaned untreated seed of average size and test weight. Many factors affect meter rates including foreign material, seed treatment, seed size, field conditions, and test weight.

Minor adjustments will be needed to compensate for these factors. Initially set the rates according to the charts, then calibrate for your material and conditions.

Calibration is also required to set up the monitor Calibration Constant. With the correct Calibration Constant and material density the monitor can be used to help fine tune the variable rate gearbox setting.

Seed Meter Final Drive Range

Refer to Figure 4 and Figure 5 (which depict meters without guards - if your cart included guards, do not operate without them)

The meter flute shaft ① is driven by the agitator shaft ② through a pair of interchangeable gears ③, ④. The positioning of these gears creates two final drive ranges.

Each rate table is based on a specific Final Drive Range. The Ranges are:

- *"High"* range, which is used for larger seeds and higher seeding rates
- *"Low"* range, which is used for smaller seeds and lower seeding rates

The two seed meter shafts are labelled "DRIVING" and "DRIVEN".
The "DRIVING" shaft is the upper shaft.
The "DRIVEN" shaft is the lower shaft.

Refer to the Sowing Table (or Fertilizer Rate Table), the table below, and Figure 4 and Figure 5 for setting the seed meter final drive range.

FINAL DRIVE RANGE	DRIVING	DRIVEN
LOW RANGE	17 Tooth Small	54 Tooth Large
HIGH RANGE	54 Tooth Large	17 Tooth Small

1. Remove the lynch pins ⑤ from the ends of both shafts.
2. Remove and position the gears as shown in the table above.
3. Secure with lynch pins.

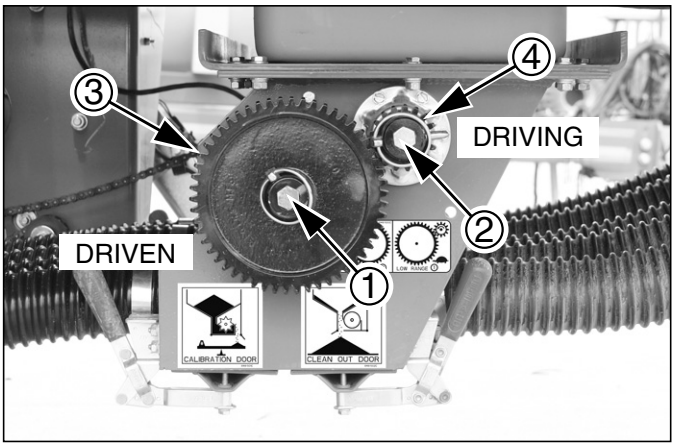


Figure 4 26368
Low Final Drive Range

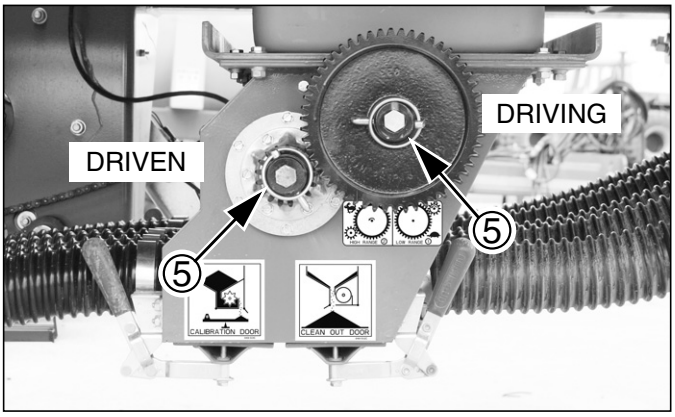


Figure 5 26369
High Final Drive Range

Setting Variable Rate Gearbox

The variable rate gearbox allows an infinitely variable meter drive speed to attain a wide range of metering rates. The ratio of gearbox input speed to output speed is controlled by the position of a gearbox control arm. The control arm has an indicator that points to a scale marked in degrees. The Sowing Tables (or Fertilizer Rate Tables) show the rate for each degree of arm rotation.

Refer to the rate charts and set the variable rate gearbox control arm to its scale setting for the target rate. With the optional servo-controlled meters (Variable Rate Kit), the rate is set via the console terminal.

To adjust the Variable Rate Gearbox for each hopper:

Refer to Figure 6

1. Remove the R-clip securing the gearbox adjustment crank.
2. Rotate crank until the control arm indicator points to the scale setting that matches the rate from the chart, or as determined by calibration.
3. Re-insert the R-clip.

Note: The variable rate gearbox operates optimally between 30 and 70. If a material has charts for both HIGH Range and LOW Range, the most consistent results are obtained when the gearbox control arm is set between 30 and 70. Settings below 20 degrees are not recommended. When the control arm is set above 70 degrees, large movements of the arm result in small changes in seeding rate.

Note: If you will be metering the same material from both bins at the same time, use the table entry for *half* the target application rate. Do not use a half scale setting - the effect of the variable rate gearbox control arm is not linear.

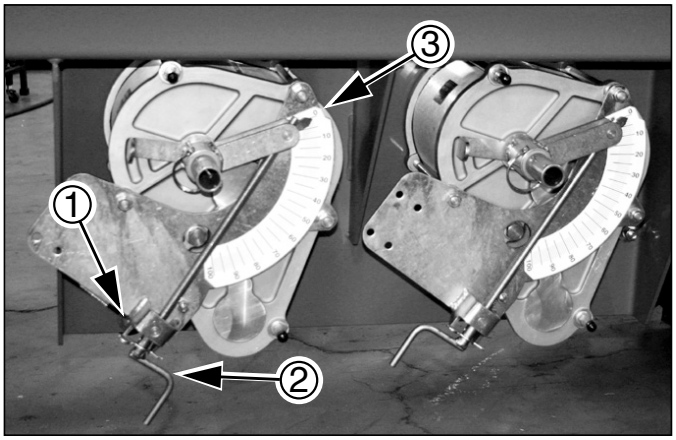


Figure 6 26306
Variable Rate Gearboxes

Meter Calibration

The rate tables are based on cleaned untreated seed of average size and test weight. Many factors affect meter rates including foreign material, seed treatment, seed size, field conditions, and test weight. The Fertilizer Rate Table is based on a representative granular fertilizer.

Great Plains recommends calibrating for the exact materials you intend to apply. Calibration determines two very important settings for achieving accurate rates:

- The Kg/ha of the meter at the current variable rate gearbox setting for your particular seed or fertilizer.
- The Calibration Constant for the monitor to accurately report the planting rate of your particular seed or fertilizer.

Calibration Procedure

The seed monitor must be correctly set up for both the pneumatic drill and the material(s), or the calibration will not result in useful console displays.

1. Set the Final Drive Range gears and Variable Rate Gearbox setting to the values suggested in the Sowing Table (or Fertilizer Rate Table).
2. Make sure there is enough material in the hopper(s) for at least $^{1}/_{10}$ hectare plus an extra 35 to 45 Kg.

Refer to Figure 8 (which depicts a meter without guards - if your cart included guards, do not operate without them)

3. Only one calibration bag is provided, so remove one of the final range gears ① from the meter that is NOT being tested, to disable it.
4. Open the calibration door ② of the meter being calibrated. The calibration door is the door furthest from the DRIVING gear, and may be marked with a decal.

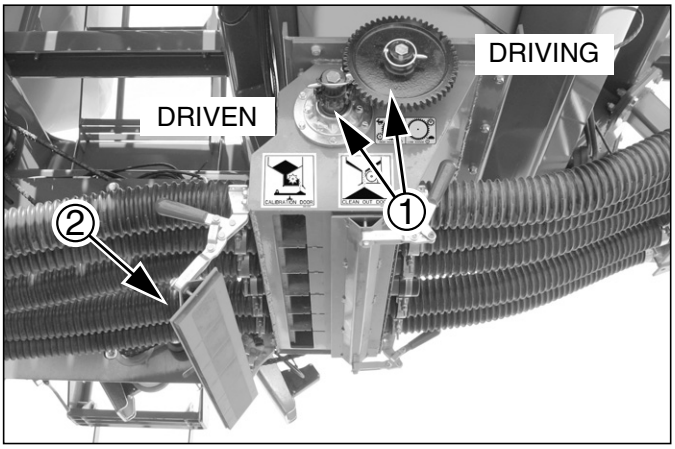


Figure 7 26339
Calibration Door Open

Calibration Crank

Loss of Material Risk:
Do not open the door under the DRIVING gear. This is the clean-out door. Opening this door drains the hopper. Once the clean-out door is open it is difficult to stop seed flow until the hopper is empty, and impossible to close it with a seal tight enough for application.

Refer to Figure 8 or Figure 10

5. Mount calibration crank:

   ADC2350/B: onto clutch shaft. See "**Meter Hand Crank**" in air cart Operator Manual for operations.

   NTA907/HD: onto contact drive shaft. See "**Calibration Crank**" in Operator Manual for operations.

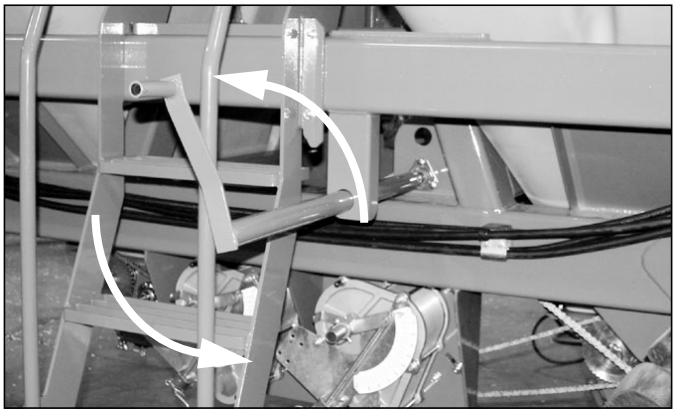


Figure 8 26333
ADC2350/B Calibration Crank

Machine Damage and Rate Risks:
Rotate calibration crank only in the correct direction:

ADC2350/B:	*COUNTERCLOCKWISE*
NTA607/HD	*COUNTERCLOCKWISE*
NTA907/HD:	*CLOCKWISE on left side, at contact drive (as shown in Figure 10) or at jackshaft (2012+ models), COUNTERCLOCKWISE on right side at contact drive*

Operating in reverse can cause gearbox damage.

6. Turn the calibration crank enough turns to be sure the meter flutes are full and the system is metering.

Figure 9 31171
NTA607/HD Calibration Crank

Possible Agricultural Chemical Hazards:
Obey manufacturer or grower recommendations for safety equipment and protective gear when using treated seeds.

7. Wipe all material off the flanges around the meter door.

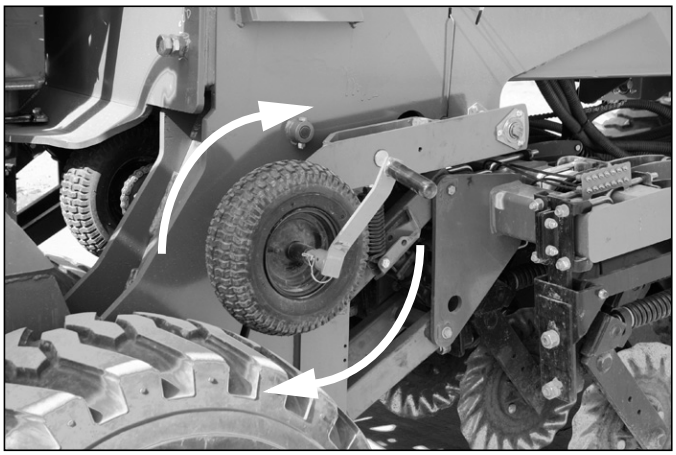


Figure 10 29417
NTA907/HD Calibration Crank

8. Accurately weigh an empty container large enough to catch material coming out of the meter. The calibration bag supplied with your cart or drill weighs:

ADC2350/B:	1.52 Kg
NTA607/HD:	0.91 Kg
NTA907/HD:	1.52 Kg

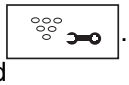
9. As needed, on models with calibration chutes, deploy or install the chute.

Refer to Figure 11 (which depicts a meter without guards - if your cart included guards, do not operate without them)

10. Place calibration bag under open calibration door or onto the calibration chute:

ADC2350: ADC2350B:	Loop bag handles over door handles and hook bag to front of the meter.
NTA607/HD:	Deploy calibration chute. Attach bag to end of chute.
NTA907HD:	Loop bag handles over door handles and hook bag to front of the meter.
NTA907:	Install calibration chute. Attach bag to discharge end of chute.

11. On the seed monitor terminal,

    set the monitor to **Calibration** mode  .

    enter [5] for the "# Meter Revs", and

    press the **Start** softkey 

.

    This "# Meter Revs" parameter does not affect the monitor calibration because the monitor counts actual meter shaft revolutions and uses that count to compute the Calibration Constant.

    The "# Meter Revs" parameter is used for a progress bar displayed during calibration.

12. Turn the calibration crank for the number of turns to simulate $^{1}/_{10}$ hectare. See table at right for the correct number of turns for your implement.

Note: A longer calibration is always more accurate, especially for low rates and small seeds. $^{1}/_{10}$ hectare is easy to calculate and is a minimum calibration run.

Note: It is important to turn the calibration crank rapidly.

For ADC2350, ADC2350B and NTA907/HD, about 2 to $2^{1}/_{2}$ revolutions per second is the proper speed to simulate 8 to 9.6 kph planting speed.

For NTA607/HD, about 1 to $1^{3}/_{4}$ revolutions per second is the proper speed to simulate 6.7 to 11.8 kph.

Figure 11 26402
Calibration Bag

Drill Model	Clutch Shaft (Crank) Revs for…	
	$^{1}/_{10}$ Hectare	
3N-4010HDA	$76^{1}/_{2}$	
CTA4000	$75^{1}/_{2}$	
CTA4000HD	$75^{1}/_{2}$	
NTA607[a]	$86^{1}/_{4}$	
NTA607HD[a]	$86^{1}/_{4}$	
NTA907	113[b] 105[c]	
NTA907HD	105	
NTA3010	102	
NTA3510	77	

a. The implement or drill Operator Manual provides more precise crank counts, which vary slightly with row spacing, wing flex option and pass/bout gap.
b. Counted at jackshaft.
c. Counted at contact wheel.

13. Wipe all the material off the flanges around the meter doors and capture that material in the calibration container.

The right column contains an example for the following steps.

Example:
Wheat, High Rate,
2 Stars
Target Seed Rate:
200 Kg/ha
Initial Variable Rate Gearbox setting:
62
Empty Calibration Bag Weight:
1.52 Kg

14. Accurately weigh the container plus material. Subtract the empty container weight to determine the application rate for $^{1}/_{10}$ hectare.

$$SampleWeight = MeasuredWeight - ContainerWeight$$

Example:
MeasuredWeight is:
23.3 Kg
SampleWeight =
23.3 - 1.53
which is:
21.7 Kg

15. Press the Stop softkey 

on the monitor and enter the sample net weight (*SampleWeight*). The monitor responds with a Calibration Constant.

    Push the Save softkey 

to accept this value.

16. Multiply the sample size by 10 to determine application rate per hectare at the current variable rate gearbox setting.

$$CalibratedRate = SampleWeight \times 10$$

Example:
CalibratedRate =
21.7 x 10
which is:
217 Kg/ha
This is higher than our target rate of:
200 Kg/ha

    If the calibrated rate matches the target rate, skip to step 22. Otherwise…

17. Subtract the calibrated rate per hectare from the target rate to determine a correction difference.

$$RateDifference = TargetRate - CalibratedRate$$

Example:
TargetRate =
200
RateDifference =
200 - 217,
which is:
-17 Kg
The calibration run metered too much.
You must *lower* the gearbox setting to compensate.

18. Refer to the Sowing Table (or Fertilizer Rate Table for Seed or Fertilizer Rate gearbox setting values for the target rate.

Example:
Initial Variable Rate Gearbox Setting: 62

TargetRate →

	183.5	59	2783
	189.4	60	2787
	195.4	61	2792
	201.3	62	2797
	207.4	63	2802

19. Determine the amount of rate change for each degree of control arm rotation from the target setting.

    If the calibrated rate was higher than target (as in our example), examine lower gearbox setting values.

    If the calibrated rate was lower than target, examine higher gearbox setting values.

Example:
1 degree lower reduces rate by
201.3 - 195.4, or 5.9 Kg
2 degrees lower reduces by
201.3 - 189.4, or 11.9 Kg
3 degrees lower reduces by
201.3 - 183.5, or 17.8 Kg

20. Adjust the control arm by the number of degrees needed to adjust for the calibration difference.

    The rate of the arm adjusting crank is more than one scale degree per turn, and the crank can only be pinned at quarter turns. Pin it when the indicator is closest to the corrected setting.

Example:
The calibration difference was:
17 Kg
Adjusting down 3 degrees would slightly over-correct, at a difference of 17.8 Kg
So adjust the gearbox setting to just under 3 degrees lower, to a final scale setting of:
slightly above 59

21. Run the calibration again, starting at step 10, using the new Variable Rate Gearbox scale setting.

    This validates the gearbox adjustment, and establishes a new, more precise Calibration Constant.

22. With the present meter satisfactorily calibrated, re-mount the final drive gear removed from the other hopper.

23. Repeat the calibration procedure for the other hopper, starting at step 1.

    If only planting from a single hopper, see "**Single Hopper Operation**" in the air cart Operator Manual for methods of disabling the meter on the hopper not in use.

24. Remove and store the calibration crank.

Changing Flute Stars

Refer to Figure 12

If the target material rate is too high or too low for the standard meter flutes ② and standard “2 Stars” tables, it may be appropriate to use an optional flute shaft (dosing roller) in the meter.

The Appendix provides alternate tables for some commonly requested seeds and rates.

③ “3 Stars” high rate tables provide metering rates that are approximately 150% of standard rates.

④ “4 Stars” high rate tables provide metering rates that are approximately 200% of standard rates.

ⓢ “Small Seeds” tables provide metering rates that vary between 20% and 50% of standard rates, if the seeds are physically compatible with the narrower, shallower Small Seeds flute pockets.

Consult the pneumatic drill or air cart Operator Manual for ordering and installation of optional flute shafts.

If the tables do not cover your intended application, and you have optional stars, use setup data for a physically comparable seed, and calibrate.

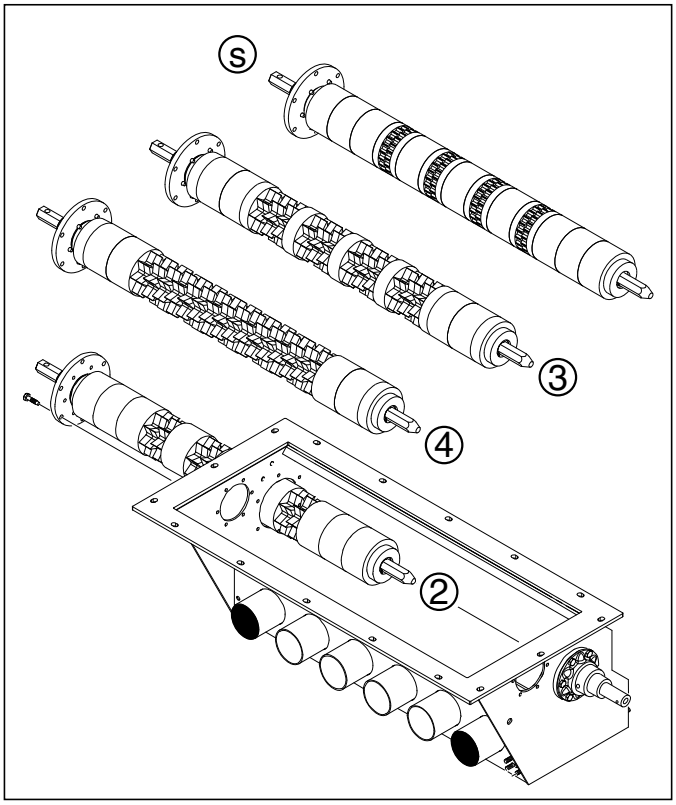


Figure 12 32398
Alternate Flute Shafts

Sowing Tables

Reading Sowing Charts

1. Find the table for your seed.

Note: There may be more than one table for the seed. Other tables require either a different Final Range, or different flute “stars”, or both. Higher Star count, and Small Seeds tables are in the Appendix.

2. Verify that the table is for your star configuration (number of flutes at each meter outlet). 2 full depth stars per drop is standard.

   Optional kits are available to increase to 3 or 4 deep stars or to use 2 shallow (Small Seeds) stars. See “**Changing Flute Stars**” on page 12.

3. Determine the Final Drive Range gearing required. See “**Seed Meter Final Drive Range**” on page 5.

Note: The final drive range gearing may be different for the fertilizer hopper and the seed hopper. If applying the same material from both hoppers, set both gear sets identically.

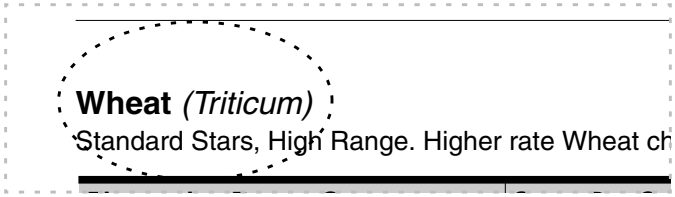
4. Note the reference Seed Density[a] used to generate the table data. Enter this on the seed monitor only if you do not know your actual density.
5. Find your target Seed Rate.

   If planting the same seed from both hoppers simultaneously, divide your target rate in half before consulting the table.

6. Set the Variable Rate Gearbox control arm to the number of degrees specified in the table under “Gearbox Setting”.

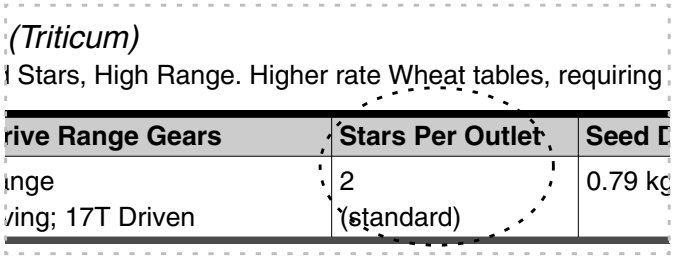
Note: Tables begin at setting 20. Settings below 20 are not recommended, other than zero (0), which may be used to temporarily shut off flow from that meter.

7. Enter the Calibration Constant (“Cal. Const.”) on the seed monitor. See manual 167-085B for Calibration Constants in pulses per cubic foot.



Wheat *(Triticum)*

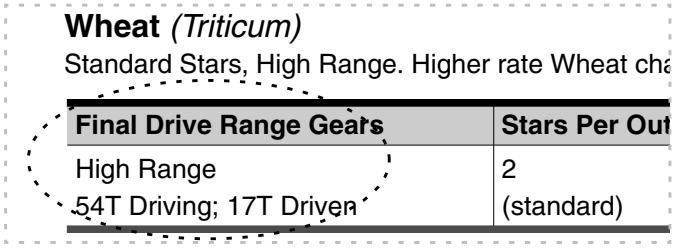
Standard Stars, High Range. Higher rate Wheat ch



(Triticum)

l Stars, High Range. Higher rate Wheat tables, requiring

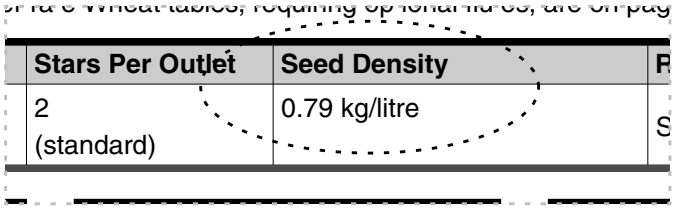
ive Range Gears	Stars Per Outlet	Seed D
nge ving; 17T Driven	2 (standard)	0.79 kg



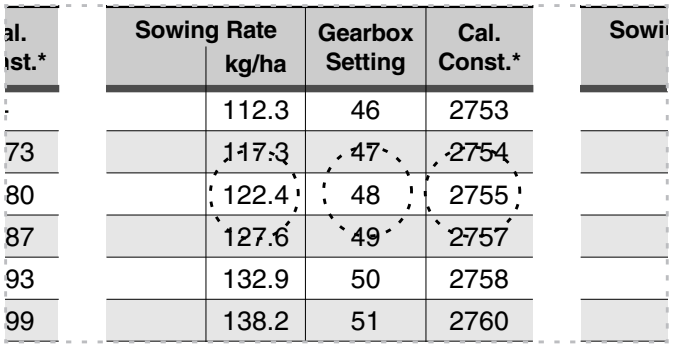
Wheat *(Triticum)*

Standard Stars, High Range. Higher rate Wheat cha

Final Drive Range Gears	Stars Per Out
High Range 54T Driving; 17T Driven	2 (standard)



	Stars Per Outlet	Seed Density	R
	2 (standard)	0.79 kg/litre	S



al. st.*	Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*	Sowi
-	112.3	46	2753	
73	117.3	47	2754	
80	122.4	48	2755	
87	127.6	49	2757	
93	132.9	50	2758	
99	138.2	51	2760	

a. If your actual seed density is significantly different, see “**Density Adjustment**” on page 39. In general, Calibration automatically compensates for typical differences between actual and reference (table) seed densities.

Alfalfa *(Medicago sativa)*

Standard Stars, Low Range

Final Drive Range Gears	Stars Per Outlet	Seed Density	Remarks:
Low Range 17T Driving; 54T Driven	2 (standard)	0.77 kg/litre	See table Notes.

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
0	0	-
1.6	20	3055
1.8	21	3073
2.0	22	3091
2.2	23	3108
2.4	24	3123
2.6	25	3138
2.9	26	3152
3.1	27	3166
3.4	28	3178
3.6	29	3189
3.9	30	3200
4.2	31	3210
4.4	32	3219
4.7	33	3227
5.0	34	3234
5.3	35	3241
5.6	36	3247
6.0	37	3252
6.3	38	3256
6.6	39	3260
7.0	40	3263
7.3	41	3265
7.7	42	3267
8.0	43	3269
8.4	44	3269
8.8	45	3270
9.2	46	3269
9.6	47	3269
10.0	48	3268
10.4	49	3266
10.9	50	3265
11.3	51	3263
11.8	52	3260
12.2	53	3258
12.7	54	3255
13.2	55	3252
13.7	56	3249
14.2	57	3246
14.7	58	3242
15.2	59	3239
15.8	60	3236
16.3	61	3232
16.9	62	3229
17.4	63	3226
18.0	64	3223
18.6	65	3219
19.2	66	3217
19.8	67	3214
20.4	68	3211
21.0	69	3209
21.6	70	3207
22.2	71	3206
22.9	72	3204
23.5	73	3204
24.1	74	3203
24.8	75	3203
25.5	76	3203
26.1	77	3204
26.8	78	3205
27.5	79	3207
28.1	80	3210
28.8	81	3213
29.5	82	3217
30.2	83	3221
30.9	84	3226
31.6	85	3232
32.2	86	3239
32.9	87	3246
33.6	88	3255
34.3	89	3264
34.9	90	3274
35.6	91	3286
36.2	92	3298
36.9	93	3312
37.5	94	3326
38.1	95	3342
38.7	96	3360
39.3	97	3378
39.9	98	3398
40.5	99	3420

Alfalfa (Low Range)

* Pulses per litre

31288m

Notes:

Stated seed density is measured, and not customary commodity call weight. If your seed has a significantly different density, see "**Density Adjustment**" on page 39.

Table rates are for application from a single hopper at a time (whether or not both are loaded with the same material). For application of the same material from both hoppers simultaneously, do not use the target rate data. First divide the target rate by two, and use the setting for that half rate. Use that target rate for calibrating each meter.

Alfalfa

Standard Stars, High Range

Final Drive Range Gears	Stars Per Outlet	Seed Density	Remarks:
High Range 54T Driving; 17T Driven	2 (standard)	0.77 kg/litre	See table Notes.

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
0	0	-
15.9	20	3252
17.6	21	3250
19.5	22	3248
21.5	23	3247
23.6	24	3245
25.8	25	3244
28.1	26	3243
30.5	27	3242
33.0	28	3242
35.6	29	3241
38.3	30	3241
41.0	31	3241
43.9	32	3242
46.9	33	3242
49.9	34	3243
53.0	35	3244
56.3	36	3245
59.5	37	3247
62.9	38	3249
66.4	39	3251
69.9	40	3253
73.5	41	3256
77.2	42	3259
81.0	43	3262
84.8	44	3266
88.7	45	3270
92.6	46	3274
96.7	47	3279
100.7	48	3283
104.9	49	3289
109.1	50	3294
113.3	51	3300
117.6	52	3306
121.9	53	3313
126.3	54	3320
130.7	55	3327
135.2	56	3335
139.7	57	3343
144.2	58	3351
148.8	59	3360
153.4	60	3370
158.0	61	3380
162.6	62	3390
167.2	63	3401
171.9	64	3412
176.5	65	3424
181.2	66	3436
185.9	67	3449
190.5	68	3462
195.2	69	3476
199.8	70	3490
204.4	71	3505
209.1	72	3521
213.6	73	3537
218.2	74	3554
222.7	75	3572
227.2	76	3590
231.7	77	3609
236.1	78	3629
240.5	79	3649
244.8	80	3670
249.0	81	3693
253.2	82	3716
257.4	83	3739
261.4	84	3764
265.4	85	3790
269.3	86	3817
273.1	87	3845
276.8	88	3874
280.4	89	3904
284.0	90	3935
287.4	91	3967
290.7	92	4001
293.9	93	4036
296.9	94	4073
299.9	95	4111
302.7	96	4150
305.3	97	4191
307.9	98	4234
310.2	99	4279

Alfalfa (High Range)

* Pulses per litre

31289m

Notes:

Stated seed density is measured, and not customary commodity call weight. If your seed has a significantly different density, see "**Density Adjustment**" on page 39.

Table rates are for application from a single hopper at a time (whether or not both are loaded with the same material). For application of the same material from both hoppers simultaneously, do not use the target rate data. First divide the target rate by two, and use the setting for that half rate. Use that target rate for calibrating each meter.

Barley *(Hordeum vulgare)*

Standard Stars, High Range

Final Drive Range Gears	Stars Per Outlet	Seed Density	Remarks:
High Range 54T Driving; 17T Driven	2 (standard)	0.68 kg/litre	See table Notes.

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
0	0	-
16.3	20	3121
18.3	21	3127
20.4	22	3132
22.6	23	3137
24.9	24	3142
27.3	25	3146
29.8	26	3150
32.4	27	3154
35.1	28	3158
37.9	29	3162
40.8	30	3165
43.8	31	3169
46.9	32	3172
50.1	33	3175
53.4	34	3178
56.8	35	3181
60.2	36	3183
63.8	37	3186
67.4	38	3188
71.2	39	3191
75.0	40	3193
78.9	41	3196
82.9	42	3198
87.0	43	3201
91.1	44	3203
95.4	45	3205
99.7	46	3208
104.1	47	3210
108.6	48	3213
113.1	49	3216
117.8	50	3218
122.5	51	3221
127.3	52	3224
132.1	53	3227
137.0	54	3231
142.0	55	3234
147.0	56	3238
152.1	57	3242
157.3	58	3246
162.5	59	3250
167.7	60	3255
173.0	61	3259
178.4	62	3265
183.8	63	3270
189.2	64	3276
194.7	65	3282
200.2	66	3288
205.7	67	3295
211.2	68	3302
216.8	69	3310
222.4	70	3318
228.0	71	3326
233.5	72	3335
239.1	73	3345
244.7	74	3354
250.3	75	3365
255.9	76	3376
261.4	77	3388
267.0	78	3400
272.5	79	3413
277.9	80	3427
283.3	81	3441
288.7	82	3456
294.0	83	3472
299.3	84	3488
304.5	85	3506
309.6	86	3524
314.6	87	3544
319.5	88	3564
324.4	89	3585
329.1	90	3608
333.8	91	3631
338.3	92	3656
342.6	93	3682
346.9	94	3709
351.0	95	3738
354.9	96	3768
358.7	97	3800
362.3	98	3833
365.7	99	3868

Barley

* Pulses per litre

31290m

Notes:

Stated seed density is measured, and not customary commodity call weight. If your seed has a significantly different density, see "**Density Adjustment**" on page 39.

Table rates are for application from a single hopper at a time (whether or not both are loaded with the same material). For application of the same material from both hoppers simultaneously, do not use the target rate data. First divide the target rate by two, and use the setting for that half rate. Use that target rate for calibrating each meter.

Canola *(Brassica napus L., Brassica campestris L., Brassica Rapa var)*

Standard Stars, Low Range

Final Drive Range Gears	Stars Per Outlet	Seed Density	Remarks:
Low Range 17T Driving; 54T Driven	2 (standard)	0.64 kg/litre	See table Notes.

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
0	0	-
1.2	20	3288
1.4	21	3288
1.5	22	3288
1.7	23	3288
1.9	24	3289
2.1	25	3290
2.2	26	3292
2.4	27	3294
2.6	28	3297
2.9	29	3299
3.1	30	3303
3.3	31	3306
3.5	32	3310
3.7	33	3314
4.0	34	3319
4.2	35	3323
4.5	36	3328
4.7	37	3333
5.0	38	3339
5.3	39	3344
5.5	40	3350
5.8	41	3355
6.1	42	3361
6.4	43	3367
6.7	44	3373
7.0	45	3379
7.3	46	3385
7.6	47	3391
7.9	48	3397
8.3	49	3402
8.6	50	3408
8.9	51	3414
9.3	52	3419
9.6	53	3425
10.0	54	3430
10.3	55	3435
10.7	56	3440
11.1	57	3444
11.4	58	3448
11.8	59	3452
12.2	60	3456
12.6	61	3459
13.0	62	3462
13.4	63	3464
13.9	64	3466
14.3	65	3468
14.7	66	3469
15.2	67	3469
15.6	68	3469
16.1	69	3468
16.6	70	3467
17.0	71	3465
17.5	72	3463
18.0	73	3460
18.6	74	3456
19.1	75	3451
19.6	76	3446
20.2	77	3440
20.7	78	3434
21.3	79	3426
21.9	80	3418
22.5	81	3409
23.1	82	3399
23.8	83	3389
24.4	84	3377
25.1	85	3365
25.8	86	3352
26.5	87	3338
27.2	88	3324
27.9	89	3308
28.7	90	3292
29.5	91	3275
30.3	92	3257
31.1	93	3238
32.0	94	3218
32.8	95	3198
33.7	96	3177
34.7	97	3155
35.6	98	3133
36.6	99	3110

Canola (Low Range)

* Pulses per litre

31292m

Notes:

Stated seed density is measured, and not customary commodity call weight. If your seed has a significantly different density, see "**Density Adjustment**" on page 39.

Table rates are for application from a single hopper at a time (whether or not both are loaded with the same material). For application of the same material from both hoppers simultaneously, do not use the target rate data. First divide the target rate by two, and use the setting for that half rate. Use that target rate for calibrating each meter.

Canola

Standard Stars, High Range

Final Drive Range Gears	Stars Per Outlet	Seed Density	Remarks:
High Range 54T Driving; 17T Driven	2 (standard)	0.64 kg/litre	See table Notes.

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
0	0	-
14.4	20	3125
15.7	21	3126
17.2	22	3127
18.7	23	3128
20.3	24	3129
21.9	25	3130
23.7	26	3132
25.6	27	3133
27.5	28	3135
29.5	29	3137
31.7	30	3139
33.9	31	3141
36.2	32	3143
38.5	33	3145
41.0	34	3147
43.5	35	3150
46.2	36	3153
48.9	37	3156
51.6	38	3159
54.5	39	3162
57.4	40	3166
60.4	41	3169
63.5	42	3173
66.7	43	3177
69.9	44	3182
73.2	45	3186
76.5	46	3191
80.0	47	3196
83.5	48	3202
87.0	49	3207
90.6	50	3213
94.3	51	3220
98.0	52	3226
101.8	53	3233
105.7	54	3240
109.6	55	3248
113.5	56	3256
117.5	57	3264
121.5	58	3273
125.6	59	3282
129.7	60	3291
133.8	61	3301
138.0	62	3311
142.2	63	3322
146.4	64	3333
150.7	65	3345
155.0	66	3357
159.3	67	3370
163.6	68	3383
167.9	69	3397
172.2	70	3411
176.5	71	3426
180.9	72	3442
185.2	73	3458
189.5	74	3475
193.8	75	3492
198.1	76	3510
202.4	77	3529
206.6	78	3549
210.8	79	3570
215.0	80	3591
219.2	81	3614
223.3	82	3637
227.3	83	3661
231.3	84	3686
235.3	85	3712
239.1	86	3740
242.9	87	3768
246.7	88	3798
250.3	89	3828
253.9	90	3860
257.4	91	3894
260.7	92	3929
264.0	93	3965
267.2	94	4003
270.2	95	4043
273.2	96	4084
276.0	97	4127
278.6	98	4173
281.1	99	4220

Canola (High Range)

* Pulses per litre

31293m

Notes:

Stated seed density is measured, and not customary commodity call weight. If your seed has a significantly different density, see "**Density Adjustment**" on page 39.

Table rates are for application from a single hopper at a time (whether or not both are loaded with the same material). For application of the same material from both hoppers simultaneously, do not use the target rate data. First divide the target rate by two, and use the setting for that half rate. Use that target rate for calibrating each meter.

Millet *(Pennisetum glaucum, Setaria italica, Panicum miliaceum, Eleusine coracana)*

Standard Stars, Low Range

Final Drive Range Gears	Stars Per Outlet	Seed Density	Remarks:
Low Range 17T Driving; 54T Driven	2 (standard)	0.59 kg/litre	See table Notes.

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
0	0	-
1.5	20	2795
1.6	21	2789
1.8	22	2785
2.0	23	2780
2.2	24	2776
2.4	25	2772
2.6	26	2769
2.8	27	2766
3.0	28	2763
3.2	29	2761
3.5	30	2759
3.7	31	2757
4.0	32	2755
4.2	33	2754
4.5	34	2753
4.8	35	2752
5.0	36	2751
5.3	37	2751
5.6	38	2751
5.9	39	2750
6.2	40	2751
6.6	41	2751
6.9	42	2751
7.2	43	2752
7.5	44	2753
7.9	45	2754

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
8.2	46	2755
8.6	47	2756
9.0	48	2757
9.3	49	2759
9.7	50	2760
10.1	51	2762
10.5	52	2763
10.9	53	2765
11.3	54	2767
11.7	55	2769
12.1	56	2771
12.6	57	2772
13.0	58	2774
13.4	59	2776
13.9	60	2778
14.4	61	2780
14.8	62	2782
15.3	63	2784
15.8	64	2785
16.3	65	2787
16.8	66	2789
17.3	67	2790
17.8	68	2792
18.3	69	2793
18.8	70	2795
19.3	71	2796
19.9	72	2797

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
20.4	73	2798
21.0	74	2799
21.6	75	2799
22.1	76	2800
22.7	77	2800
23.3	78	2800
23.9	79	2800
24.5	80	2800
25.1	81	2799
25.8	82	2798
26.4	83	2797
27.1	84	2796
27.7	85	2795
28.4	86	2793
29.1	87	2791
29.8	88	2789
30.5	89	2786
31.2	90	2783
32.0	91	2780
32.7	92	2777
33.5	93	2773
34.3	94	2769
35.0	95	2764
35.9	96	2760
36.7	97	2754
37.5	98	2749
38.4	99	2743

Millet (Low Range) * Pulses per litre 31294m

Notes:

Stated seed density is measured, and not customary commodity call weight. If your seed has a significantly different density, see "**Density Adjustment**" on page 39.

Table rates are for application from a single hopper at a time (whether or not both are loaded with the same material). For application of the same material from both hoppers simultaneously, do not use the target rate data. First divide the target rate by two, and use the setting for that half rate. Use that target rate for calibrating each meter.

Millet

Standard Stars, High Range

Final Drive Range Gears	Stars Per Outlet	Seed Density	Remarks:
High Range 54T Driving; 17T Driven	2 (standard)	0.59 kg/litre	See table Notes.

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
0	0	-
14.5	20	2773
15.9	21	2780
17.5	22	2787
19.1	23	2794
20.9	24	2800
22.7	25	2805
24.6	26	2809
26.6	27	2813
28.6	28	2817
30.8	29	2820
33.1	30	2822
35.4	31	2825
37.8	32	2826
40.4	33	2827
43.0	34	2828
45.6	35	2829
48.4	36	2829
51.3	37	2829
54.2	38	2828
57.3	39	2828
60.4	40	2827
63.6	41	2825
66.9	42	2824
70.3	43	2823
73.7	44	2821
77.3	45	2819
80.9	46	2817
84.6	47	2815
88.4	48	2814
92.3	49	2812
96.2	50	2810
100.2	51	2808
104.3	52	2806
108.5	53	2804
112.7	54	2802
117.0	55	2801
121.4	56	2800
125.8	57	2798
130.3	58	2798
134.9	59	2797
139.5	60	2796
144.1	61	2796
148.8	62	2796
153.6	63	2797
158.4	64	2798
163.2	65	2799
168.1	66	2800
173.0	67	2802
177.9	68	2805
182.8	69	2808
187.8	70	2811
192.7	71	2815
197.7	72	2820
202.6	73	2825
207.6	74	2831
212.5	75	2837
217.4	76	2844
222.3	77	2852
227.1	78	2861
231.9	79	2870
236.7	80	2881
241.4	81	2892
246.0	82	2904
250.5	83	2917
255.0	84	2931
259.3	85	2947
263.6	86	2963
267.7	87	2981
271.7	88	3000
275.6	89	3020
279.4	90	3042
282.9	91	3065
286.4	92	3090
289.6	93	3117
292.6	94	3146
295.5	95	3176
298.1	96	3209
300.5	97	3244
302.7	98	3281
304.6	99	3320

Millet (High Range)

* Pulses per litre

31295m

Notes:

Stated seed density is measured, and not customary commodity call weight. If your seed has a significantly different density, see "**Density Adjustment**" on page 39.

Table rates are for application from a single hopper at a time (whether or not both are loaded with the same material). For application of the same material from both hoppers simultaneously, do not use the target rate data. First divide the target rate by two, and use the setting for that half rate. Use that target rate for calibrating each meter.

Milo *(Sorghum)*

Standard Stars, Low Range

Final Drive Range Gears	Stars Per Outlet	Seed Density	Remarks:
Low Range 17T Driving; 54T Driven	2 (standard)	0.78 kg/litre	See table Notes.

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
0	0	-
1.5	20	3104
1.8	21	3097
2.0	22	3091
2.2	23	3086
2.5	24	3081
2.7	25	3076
3.0	26	3071
3.2	27	3067
3.5	28	3063
3.8	29	3059
4.1	30	3056
4.4	31	3052
4.7	32	3050
5.1	33	3047
5.4	34	3044
5.7	35	3042
6.1	36	3040
6.4	37	3039
6.8	38	3037
7.2	39	3036
7.6	40	3035
8.0	41	3034
8.4	42	3033
8.8	43	3033
9.2	44	3033
9.6	45	3032
10.1	46	3032
10.5	47	3033
11.0	48	3033
11.4	49	3033
11.9	50	3034
12.4	51	3035
12.8	52	3036
13.3	53	3036
13.8	54	3038
14.3	55	3039
14.9	56	3040
15.4	57	3041
15.9	58	3043
16.5	59	3044
17.0	60	3046
17.6	61	3048
18.1	62	3050
18.7	63	3051
19.3	64	3053
19.8	65	3055
20.4	66	3057
21.0	67	3059
21.6	68	3061
22.3	69	3063
22.9	70	3065
23.5	71	3067
24.1	72	3069
24.8	73	3071
25.4	74	3073
26.1	75	3075
26.8	76	3077
27.5	77	3079
28.1	78	3081
28.8	79	3083
29.5	80	3084
30.2	81	3086
31.0	82	3088
31.7	83	3089
32.4	84	3091
33.2	85	3092
33.9	86	3093
34.7	87	3094
35.4	88	3095
36.2	89	3096
37.0	90	3097
37.8	91	3098
38.6	92	3098
39.4	93	3099
40.2	94	3099
41.1	95	3099
41.9	96	3099
42.8	97	3098
43.6	98	3098
44.5	99	3097

Milo (Low Range)

* Pulses per litre

31296m

Notes:

Stated seed density is measured, and not customary commodity call weight. If your seed has a significantly different density, see "**Density Adjustment**" on page 39.

Table rates are for application from a single hopper at a time (whether or not both are loaded with the same material). For application of the same material from both hoppers simultaneously, do not use the target rate data. First divide the target rate by two, and use the setting for that half rate. Use that target rate for calibrating each meter.

Milo

Standard Stars, High Range

Final Drive Range Gears	Stars Per Outlet	Seed Density	Remarks:
High Range 54T Driving; 17T Driven	2 (standard)	0.78 kg/litre	See table Notes.

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
0	0	-
16.8	20	3036
18.6	21	3037
20.5	22	3038
22.5	23	3039
24.6	24	3040
26.9	25	3041
29.2	26	3041
31.7	27	3042
34.2	28	3043
36.9	29	3044
39.6	30	3045
42.5	31	3046
45.4	32	3046
48.5	33	3047
51.6	34	3049
54.9	35	3050
58.2	36	3051
61.7	37	3053
65.2	38	3054
68.8	39	3056
72.5	40	3058
76.3	41	3061
80.2	42	3063
84.2	43	3066
88.2	44	3069
92.3	45	3072

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
96.5	46	3076
100.8	47	3079
105.1	48	3084
109.5	49	3088
113.9	50	3093
118.4	51	3098
123.0	52	3104
127.6	53	3110
132.3	54	3117
137.0	55	3124
141.8	56	3132
146.5	57	3140
151.4	58	3148
156.2	59	3158
161.1	60	3168
165.9	61	3178
170.8	62	3189
175.7	63	3201
180.6	64	3213
185.5	65	3227
190.4	66	3241
195.2	67	3255
200.1	68	3271
204.9	69	3288
209.6	70	3305
214.3	71	3324
219.0	72	3344

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
223.6	73	3364
228.1	74	3386
232.6	75	3409
237.0	76	3433
241.2	77	3459
245.4	78	3486
249.5	79	3515
253.4	80	3545
257.2	81	3577
260.9	82	3610
264.5	83	3645
267.8	84	3683
271.0	85	3722
274.1	86	3764
276.9	87	3808
279.6	88	3855
282.0	89	3904
284.2	90	3957
286.2	91	4012
287.9	92	4071
289.3	93	4133
290.5	94	4200
291.4	95	4270
292.0	96	4345
292.3	97	4425
292.3	98	4511
292.0	99	4602

Milo (High Range)

* Pulses per litre

31297m

Notes:

Stated seed density is measured, and not customary commodity call weight. If your seed has a significantly different density, see "**Density Adjustment**" on page 39.

Table rates are for application from a single hopper at a time (whether or not both are loaded with the same material). For application of the same material from both hoppers simultaneously, do not use the target rate data. First divide the target rate by two, and use the setting for that half rate. Use that target rate for calibrating each meter.

Oats *(Avena sativa)*

Standard Stars, High Range. Higher rate Oats tables, requiring optional flutes, are on page 40 and page 41

Final Drive Range Gears	Stars Per Outlet	Seed Density	Remarks:
High Range 54T Driving; 17T Driven	2 (standard)	0.50 kg/litre	See table Notes.

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
0	0	-
13.6	20	2394
14.9	21	2403
16.4	22	2412
17.9	23	2420
19.6	24	2429
21.3	25	2437
23.1	26	2445
24.9	27	2452
26.9	28	2460
29.0	29	2467
31.1	30	2475
33.3	31	2482
35.5	32	2489
37.9	33	2496
40.3	34	2503
42.8	35	2510
45.4	36	2517
48.0	37	2524
50.7	38	2530
53.4	39	2537
56.3	40	2544
59.1	41	2551
62.1	42	2558
65.1	43	2565
68.1	44	2572
71.2	45	2579

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
74.4	46	2586
77.6	47	2593
80.8	48	2601
84.1	49	2608
87.5	50	2616
90.8	51	2624
94.3	52	2632
97.7	53	2641
101.2	54	2649
104.7	55	2658
108.2	56	2668
111.7	57	2677
115.3	58	2687
118.9	59	2698
122.5	60	2708
126.1	61	2720
129.7	62	2731
133.3	63	2743
136.8	64	2756
140.4	65	2769
144.0	66	2783
147.5	67	2797
151.1	68	2812
154.6	69	2828
158.0	70	2844
161.4	71	2861
164.8	72	2879

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
168.1	73	2898
171.4	74	2918
174.6	75	2938
177.8	76	2960
180.8	77	2983
183.8	78	3007
186.7	79	3032
189.5	80	3058
192.3	81	3086
194.9	82	3115
197.4	83	3145
199.7	84	3178
202.0	85	3211
204.1	86	3247
206.1	87	3285
207.9	88	3325
209.5	89	3367
211.0	90	3412
212.3	91	3459
213.5	92	3509
214.4	93	3562
215.2	94	3618
215.7	95	3678
216.0	96	3741
216.1	97	3809
215.9	98	3881
215.5	99	3958

Oats (2 Stars)

* Pulses per litre

31298m

Notes:

Stated seed density is measured, and not customary commodity call weight. If your seed has a significantly different density, see "**Density Adjustment**" on page 39.

Table rates are for application from a single hopper at a time (whether or not both are loaded with the same material). For application of the same material from both hoppers simultaneously, do not use the target rate data. First divide the target rate by two, and use the setting for that half rate. Use that target rate for calibrating each meter.

Peas *(Pisum sativum)*

Standard Stars, High Range. Higher rate Peas tables, requiring optional flutes, are on page 42 and page 43

Final Drive Range Gears	Stars Per Outlet	Seed Density	Remarks:
High Range 54T Driving; 17T Driven	2 (standard)	0.71 kg/litre	See table Notes.

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
0	0	-
7.4	20	3280
8.8	21	3277
10.3	22	3276
11.9	23	3275
13.6	24	3276
15.4	25	3278
17.3	26	3281
19.3	27	3284
21.4	28	3289
23.5	29	3295
25.7	30	3301
28.0	31	3309
30.4	32	3318
32.8	33	3327
35.3	34	3337
37.8	35	3349
40.5	36	3361
43.1	37	3374
45.8	38	3389
48.6	39	3404
51.4	40	3420
54.2	41	3437
57.1	42	3455
60.0	43	3474
63.0	44	3494
65.9	45	3515
68.9	46	3537
71.9	47	3560
74.9	48	3584
77.9	49	3609
80.9	50	3635
84.0	51	3662
87.0	52	3690
90.0	53	3719
93.0	54	3750
96.0	55	3781
99.0	56	3814
101.9	57	3848
104.8	58	3883
107.7	59	3919
110.6	60	3957
113.4	61	3996
116.2	62	4036
119.0	63	4078
121.7	64	4120
124.4	65	4165
127.0	66	4210
129.6	67	4257
132.1	68	4306
134.6	69	4356
137.0	70	4408
139.3	71	4461
141.6	72	4516
143.8	73	4573
146.0	74	4631
148.1	75	4691
150.1	76	4753
152.0	77	4816
153.9	78	4882
155.7	79	4949
157.4	80	5019
159.0	81	5090
160.6	82	5163
162.1	83	5239
163.5	84	5316
164.9	85	5396
166.2	86	5478
167.3	87	5562
168.5	88	5649
169.5	89	5738
170.5	90	5829
171.4	91	5922
172.2	92	6018
172.9	93	6117
173.6	94	6218
174.2	95	6321
174.8	96	6427
175.3	97	6535
175.7	98	6646
176.1	99	6759

Peas (2 Stars)

* Pulses per litre

31301m

Notes:

Stated seed density is measured, and not customary commodity call weight. If your seed has a significantly different density, see "**Density Adjustment**" on page 39.

Table rates are for application from a single hopper at a time (whether or not both are loaded with the same material). For application of the same material from both hoppers simultaneously, do not use the target rate data. First divide the target rate by two, and use the setting for that half rate. Use that target rate for calibrating each meter.

Soybeans *(Glycine max)*

Standard Stars, High Range. Higher rate Soybean tables, requiring optional flutes, are on page 44 and page 45

Final Drive Range Gears	Stars Per Outlet	Seed Density	Remarks:
High Range 54T Driving; 17T Driven	2 (standard)	0.73 kg/litre	See table Notes.

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
0	0	-
12.6	20	2662
14.5	21	2667
16.5	22	2672
18.6	23	2677
20.9	24	2682
23.2	25	2688
25.6	26	2693
28.2	27	2699
30.8	28	2705
33.6	29	2711
36.4	30	2717
39.3	31	2723
42.3	32	2730
45.4	33	2737
48.6	34	2743
51.9	35	2750
55.2	36	2758
58.7	37	2765
62.2	38	2773
65.7	39	2780
69.4	40	2788
73.1	41	2797
76.9	42	2805
80.8	43	2814
84.7	44	2823
88.7	45	2832

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
92.7	46	2842
96.8	47	2851
100.9	48	2862
105.1	49	2872
109.3	50	2883
113.6	51	2894
117.9	52	2905
122.3	53	2917
126.6	54	2929
131.1	55	2941
135.5	56	2954
140.0	57	2967
144.4	58	2981
148.9	59	2995
153.4	60	3009
158.0	61	3024
162.5	62	3039
167.0	63	3055
171.5	64	3072
176.0	65	3089
180.5	66	3106
185.0	67	3124
189.5	68	3143
193.9	69	3162
198.4	70	3182
202.8	71	3202
207.1	72	3223

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
211.4	73	3245
215.7	74	3268
219.9	75	3291
224.0	76	3316
228.1	77	3341
232.2	78	3367
236.1	79	3394
240.0	80	3421
243.8	81	3450
247.6	82	3480
251.2	83	3511
254.7	84	3543
258.2	85	3576
261.5	86	3611
264.7	87	3647
267.8	88	3684
270.8	89	3723
273.7	90	3763
276.4	91	3805
279.0	92	3849
281.4	93	3895
283.7	94	3942
285.8	95	3991
287.7	96	4043
289.5	97	4097
291.1	98	4153
292.5	99	4212

Soybeans (2 Stars)

* Pulses per litre

31304m

Notes:

Stated seed density is measured, and not customary commodity call weight. If your seed has a significantly different density, see "**Density Adjustment**" on page 39.

Table rates are for application from a single hopper at a time (whether or not both are loaded with the same material). For application of the same material from both hoppers simultaneously, do not use the target rate data. First divide the target rate by two, and use the setting for that half rate. Use that target rate for calibrating each meter.

Sunflowers *(Helianthus annuus)*

Standard Stars, Low Range

Final Drive Range Gears	Stars Per Outlet	Seed Density	Remarks:
Low Range 17T Driving; 54T Driven	2 (standard)	0.40 kg/litre	See table Notes.

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
0	0	-
0.8	20	2991
0.9	21	2995
1.0	22	2999
1.2	23	3002
1.3	24	3005
1.4	25	3007
1.5	26	3009
1.7	27	3011
1.8	28	3013
1.9	29	3014
2.1	30	3015
2.3	31	3015
2.4	32	3015
2.6	33	3016
2.7	34	3015
2.9	35	3015
3.1	36	3014
3.3	37	3013
3.5	38	3012
3.7	39	3011
3.9	40	3010
4.1	41	3008
4.3	42	3007
4.5	43	3005
4.7	44	3004
4.9	45	3002
5.1	46	3000
5.4	47	2998
5.6	48	2997
5.9	49	2995
6.1	50	2993
6.4	51	2991
6.6	52	2990
6.9	53	2988
7.1	54	2987
7.4	55	2986
7.7	56	2984
8.0	57	2983
8.2	58	2982
8.5	59	2982
8.8	60	2981
9.1	61	2981
9.4	62	2981
9.7	63	2981
10.0	64	2982
10.3	65	2982
10.7	66	2983
11.0	67	2985
11.3	68	2986
11.6	69	2988
11.9	70	2991
12.3	71	2993
12.6	72	2997
12.9	73	3000
13.3	74	3004
13.6	75	3009
13.9	76	3014
14.3	77	3019
14.6	78	3025
15.0	79	3032
15.3	80	3039
15.6	81	3047
16.0	82	3055
16.3	83	3064
16.7	84	3074
17.0	85	3084
17.3	86	3096
17.7	87	3107
18.0	88	3120
18.3	89	3134
18.6	90	3148
18.9	91	3164
19.3	92	3180
19.6	93	3198
19.9	94	3216
20.2	95	3236
20.4	96	3257
20.7	97	3279
21.0	98	3302
21.2	99	3327

Sunflowers (Low Range)

* Pulses per litre

31307m

Notes:

Stated seed density is measured, and not customary commodity call weight. If your seed has a significantly different density, see "**Density Adjustment**" on page 39.

Table rates are for application from a single hopper at a time (whether or not both are loaded with the same material). For application of the same material from both hoppers simultaneously, do not use the target rate data. First divide the target rate by two, and use the setting for that half rate. Use that target rate for calibrating each meter.

Wheat *(Triticum)*

Standard Stars, High Range. Higher rate Wheat tables, requiring optional flutes, are on page 46 and page 47

Final Drive Range Gears	Stars Per Outlet	Seed Density	Remarks:
High Range 54T Driving; 17T Driven	2 (standard)	0.79 kg/litre	See table Notes.

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
0	0	-
18.4	20	2673
20.6	21	2680
23.0	22	2687
25.4	23	2693
28.0	24	2699
30.7	25	2704
33.5	26	2709
36.4	27	2714
39.5	28	2718
42.6	29	2722
45.9	30	2725
49.2	31	2728
52.7	32	2731
56.3	33	2734
60.0	34	2736
63.7	35	2738
67.6	36	2740
71.7	37	2742
75.8	38	2743
80.0	39	2745
84.3	40	2746
88.7	41	2747
93.3	42	2748
97.9	43	2750
102.6	44	2751
107.4	45	2752

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
112.3	46	2753
117.3	47	2754
122.4	48	2755
127.6	49	2757
132.9	50	2758
138.2	51	2760
143.7	52	2762
149.2	53	2764
154.7	54	2766
160.4	55	2769
166.1	56	2772
171.8	57	2775
177.6	58	2779
183.5	59	2783
189.4	60	2787
195.4	61	2792
201.3	62	2797
207.4	63	2802
213.4	64	2809
219.4	65	2815
225.5	66	2823
231.5	67	2831
237.6	68	2839
243.6	69	2848
249.6	70	2858
255.5	71	2869
261.5	72	2881

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
267.3	73	2893
273.1	74	2907
278.9	75	2921
284.5	76	2936
290.1	77	2953
295.5	78	2970
300.8	79	2989
306.1	80	3009
311.1	81	3030
316.0	82	3053
320.8	83	3077
325.3	84	3103
329.7	85	3131
333.9	86	3160
337.8	87	3192
341.5	88	3225
344.9	89	3261
348.1	90	3299
350.9	91	3339
353.5	92	3383
355.8	93	3429
357.7	94	3479
359.2	95	3532
360.4	96	3589
361.1	97	3649
361.5	98	3715
361.4	99	3785

Wheat (2 Stars)

* Pulses per litre

31308m

Notes:

Stated seed density is measured, and not customary commodity call weight. If your seed has a significantly different density, see "**Density Adjustment**" on page 39.

Table rates are for application from a single hopper at a time (whether or not both are loaded with the same material). For application of the same material from both hoppers simultaneously, do not use the target rate data. First divide the target rate by two, and use the setting for that half rate. Use that target rate for calibrating each meter.

Dry Fertilizer Rate

ADC2350/B, NTA607/HD and NTA907/HD systems meter dry granular fertilizer in the same fashion as seed. This section of the manual includes a table for a representative material.

Note: For liquid fertilizer rate, see page 30.

Note: Applying granular fertilizer with the optional Small Seeds flute shaft installed is not recommended.

Reading Dry Fertilizer Rate Tables

1. Verify that the table is for your star configuration (flutes at each meter outlet). 2 stars is standard.

   Higher rate tables, requiring optional flute star shafts, begin on page 40. Optional kits are available to increase to 3 or 4 stars. See "**Changing Flute Stars**" on page 12.

2. Determine the Final Range gearing required. See "**Seed Meter Final Drive Range**" on page 5

Note: The Range gearing may be different for the fertilizer hopper and the seed hopper.

3. Note the reference Material Density[a] used to develop the table. Enter this on the seed monitor only if you do not know your actual density.

4. Find your target fertilizer rate (which is kilograms-per-hectare).
5. Set the Variable Rate Gearbox control arm as specified in the "Gearbox Setting" column.

Note: Tables begin at setting 20.
Settings below 20 are not recommended, other than zero (0), which may be used to temporarily shut off flow from that meter.

6. Enter the Calibration Constant ("Cal. Const.") on the seed monitor. See manual 167-085B for Calibration Constants in pulses per cubic foot.

Range Gears	Stars Per Outlet	Material D
; 17T Driven	2 (standard)	0.96 kg/litr

Higher fertilizer rates, requiring optional flu

Final Drive Range Gears	Stars
High Range 54T Driving; 17T Driven	2 (stand

Stars Per Outlet	Material Density	F
2 (standard)	0.96 kg/litre	E S

Material Rate kg/ha	Gearbox Setting	Cal. Const.*	Material Rate kg/ha
0	0	-	119.7
20.2	20	2862	125.0
22.4	21	2866	130.4
24.8	22	2871	135.8
27.3	23	2875	141.4
30.0	24	2879	147.0
32.8	25	2884	152.6

a. If your actual material density is significantly different, see "**Density Adjustment**" on page 39.
In general, Calibration automatically compensates for modest differences between actual and reference (table) fertilizer densities.

Fertilizer Rates (2 Stars)

Higher fertilizer rates, requiring optional flutes, are on page 48 and page 49

Final Drive Range Gears	Stars Per Outlet	Material Density	Remarks:
High Range 54T Driving; 17T Driven	2 (standard)	0.96 kg/litre	Based on 11-52-0. See also table Notes.

Material Rate kg/ha	Gearbox Setting	Cal. Const.*
0	0	-
20.2	20	2862
22.4	21	2866
24.8	22	2871
27.3	23	2875
30.0	24	2879
32.8	25	2884
35.7	26	2888
38.7	27	2892
41.9	28	2896
45.2	29	2900
48.7	30	2904
52.3	31	2908
56.0	32	2913
59.8	33	2917
63.7	34	2921
67.8	35	2926
72.0	36	2930
76.3	37	2935
80.7	38	2939
85.2	39	2944
89.9	40	2949
94.6	41	2954
99.4	42	2960
104.4	43	2965
109.4	44	2971
114.5	45	2977

Material Rate kg/ha	Gearbox Setting	Cal. Const.*
119.7	46	2983
125.0	47	2990
130.4	48	2997
135.8	49	3004
141.4	50	3011
147.0	51	3019
152.6	52	3028
158.3	53	3036
164.1	54	3045
169.9	55	3055
175.8	56	3065
181.7	57	3075
187.6	58	3086
193.6	59	3098
199.6	60	3110
205.6	61	3123
211.6	62	3136
217.6	63	3150
223.6	64	3165
229.6	65	3180
235.5	66	3196
241.5	67	3213
247.4	68	3231
253.2	69	3250
259.0	70	3270
264.8	71	3290
270.4	72	3312

Material Rate kg/ha	Gearbox Setting	Cal. Const.*
276.0	73	3335
281.5	74	3359
286.9	75	3384
292.2	76	3410
297.3	77	3438
302.4	78	3467
307.3	79	3498
312.0	80	3530
316.6	81	3564
321.0	82	3600
325.2	83	3638
329.2	84	3678
333.0	85	3720
336.5	86	3764
339.8	87	3811
342.9	88	3860
345.7	89	3912
348.2	90	3967
350.4	91	4026
352.4	92	4088
353.9	93	4153
355.2	94	4223
356.1	95	4297
356.6	96	4376
356.7	97	4460
356.4	98	4550
355.7	99	4646

Dry Fertilizer Rates (2 Stars) * Pulses per litre 31311m

Notes:

If your material has a significantly different density, see "**Density Adjustment**" on page 39.

Table rates are for application from a single hopper at a time (whether or not both are loaded with the same material). For application of the same material from both hoppers simultaneously, do not use the target rate data. First divide the target rate by two, and use the setting for that half rate. Use that target rate for calibrating each meter.

Liquid Fertilizer Rates

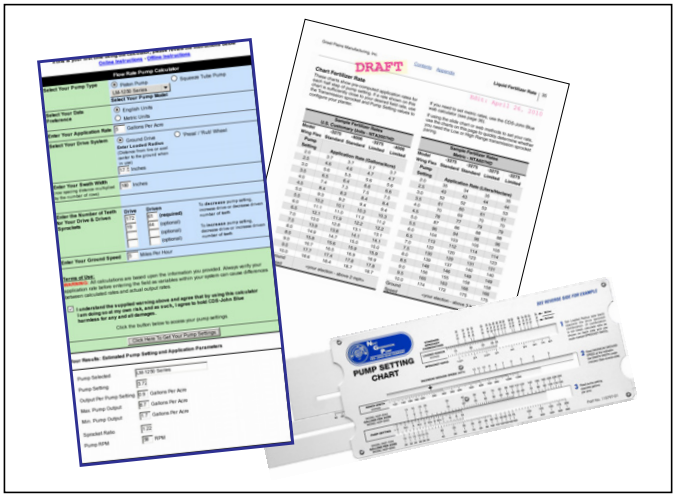
For dry fertilizer rate, see page 28.

Liquid fertilizer rates apply only to some single-hopper models of NTA607 and NTA607HD. The drill must be equipped with optional tanks and liquid fertilizer pump.

Note: Great Plains recommends checking with your local Agronomist as soil conditions vary. Soil conditions in your area may need lesser or more amounts of fertilizer than represented in these tables. For in-furrow applications, do not exceed 112 litres/ha in any case.

Liquid Fertilizer Rate Setting Steps

1. Determine application rate desired.
2. Determine sprocket paring and pump adjuster setting required to provide that rate. Use any of the following resources:
   - use the web calculator on the CDS-John Blue web site www.cds-johnblue.com/flow-rate-calculator.shtml The table on page 34 provides data required.
   - use the CDS-John Blue 115797-01 (115698-91) slide chart provided with the pump. Use the sprocket ratios and loaded radius shown in the tables on page 36. Some of the values in these tables have been adjusted to ease use of the slide chart.
   - use the pre-computed tables on page 37



Set Pump Adjuster

Refer to Figure 13

3. Using the box-wrench end of the CDS-John Blue 115631-01 tool ①, loosen the setting pointer nut ②.
4. Use the other end of the tool to rotate the dial ③ to the setting determined by table, slide chart or internet calculator.
5. Re-tighten pointer nut.

Determine Orifice Size

Orifice plates at each drop line provide back-pressure that balances flow in the manifolds, assuring that each row obtains the same rate. Plates are provided with the system(s) in three sizes. Additional sizes are available.

6. Choose orifice size based on desired rate. For a given rate, there may be more than one orifice size that provides the recommended back-pressure. To reduce orifice wear, orifice plugging and pump wear, use the largest orifice practical for your fertilizer application rate.

   The table below shows rate ranges for each Great Plains orifice size and row spacing. You may need to change to the next higher or lower orifice for a different fertilizer solution density and/or a different ground speed.

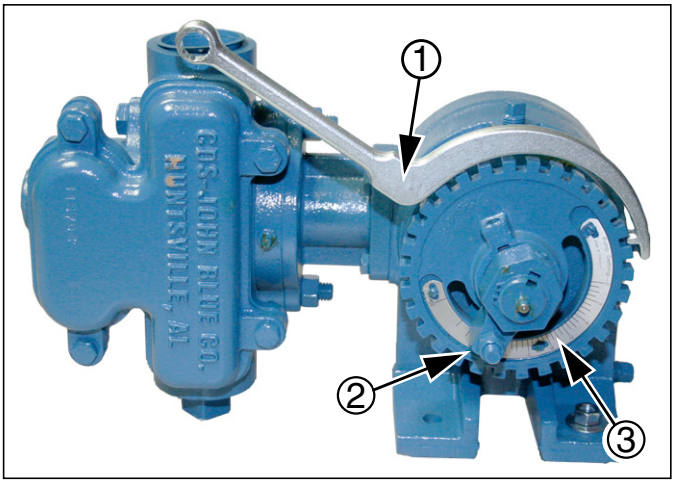


Figure 13 31320
NGP-6055K Pump Adjuster

Material Loss/Equipment Damage Risk:
Set application rate at pump, not by orifice size. Orifice size is only used to create 15-40 psi back pressure to provide even flow between rows. An orifice size too small causes material loss at relief valve. A size too large can cause irregular flow.

Orifice Plate Size	20	28*	34*	48*	59	80	98
Nozzle Spacing	**Recommended Rate Range in Gallons per Acre. Range is 15 - 40 PSI** (Values based on: 5.0 mph, 10.7 lbs/gallon Fertilizer solution density)						
6 inch single	5.6 - 9.1	11 - 17	16 - 26	31 - 50	46 - 76	85 - 139	134 - 219
7.5 inch single	4.5 - 7.3	8.4 - 14	13 - 21	25 - 40	37 - 61	68 - 111	107 - 175
8 inch single	4.2 - 6.8	7.9 - 13	12 - 19	23 - 38	35 - 57	64 - 104	101 - 164
9.5 inch single	3.5 - 5.8	6.6 - 11	10 - 16	19 - 32	29 - 48	54 - 88	85 - 138
10 inch single	3.4 - 5.5	6.3 - 10	9.5 - 15	18 - 30	28 - 46	51 - 83	80 - 131
13.8in (35cm, 70TR)	2.4 - 4.0	4.6 - 7.5	6.9 - 11	13 - 22	20 - 33	37 - 61	58 - 95
15in single (30TR)	2.2 - 3.6	4.2 - 6.9	6.3 - 10	12 - 20	19 - 30	34 - 56	54 - 88
18in (36in Twin Row)	1.9 - 3.0	3.5 - 5.7	5.3 - 8.6	10 - 17	15 - 25	28 - 46	45 - 73
19in (38in Twin Row)	1.8 - 2.9	3.3 - 5.4	5.0 - 8.1	9.7 - 16	15 - 24	27 - 44	42 - 69
20 inch single	1.7 - 2.7	3.2 - 5.2	4.7 - 7.7	9.2 - 15	14 - 23	26 - 42	40 - 66
27.6in (70cm single)	1.2 - 2.0	2.3 - 3.7	3.4 - 5.6	6.7 - 11	10 - 17	19 - 30	29 - 48
30 inch single	1.1 - 1.8	2.1 - 3.4	3.2 - 5.2	6.1 - 10	9.3 - 15	17 - 28	27 - 44
36 inch single	0.9 - 1.5	1.8 - 2.9	2.6 - 4.3	5.1 - 8.4	7.7 - 13	14 - 23	22 - 37
38 inch single	0.9 - 1.4	1.7 - 2.7	2.5 - 4.1	4.8 - 7.9	7.3 - 12	13 - 22	21 - 35
40 inch single	0.8 - 1.4	1.6 - 2.6	2.4 - 3.9	4.6 - 7.5	7.0 - 11	13 - 21	20 - 33

* These sizes standard in most Great Plains fertilizer systems. 31014

Note: Maximum available rate depends on pump rating, drive setup, ground speed, and drill swath. Not all of the higher rates above are possible in all configurations.

Install Orifice Plates

Refer to Figure 14

7. Insert the plate inside the gasket ② supplied with the nozzle ③. Insert the gasketed plate with the legend side facing out the nozzle outlet (typically up).

In general, the orifice ① needs to be small enough to create enough pressure in the manifold to operate the check valves ④ in the boom clamps, but not so much that the system dumps product at the boom relief valve.

The recommend operating pressure is: 15 to 40 psi

Using an orifice size too large can result in unequal flow at rows, intermittent flow, and flow stoppage at rows where pressure falls below the 8 psi required to open the clamp check valve. Using a size too small can cause excess back-pressure resulting in material dumping at the boom relief valve.

Use the same size at all active rows.

Row Shut-Off

Refer to Figure 14

Unused drop lines may be shut off by replacing the nozzle ③ with a Great Plains 832-042C cap ⑤. Twin row boom systems separately include caps for half the rows.

When installing a cap:

- It is not necessary to remove the gasketed orifice plate from inside the clamp. The cap includes its own gasket that seals at the end of the clamp port.
- Use a tie wrap or other line to secure the loose nozzle and drop line tubing to the boom.
- Adjust pump and/or orifice plates for new rate and row spacing.

Mis-Application or Material Loss Risk:
Do not apply materials after row shut-off or row turn-on without first reviewing setup. Merely changing the number of active rows does not change the application rate. If pump and/or orifice size changes are not also made, pressures could be too low or too high.

Equipment Damage Risk:
Plant at or below 14 kph with the standard high rate sprockets installed. The pump is rated for 550 rpm maximum, which is exceeded at and above 14.2 kph.

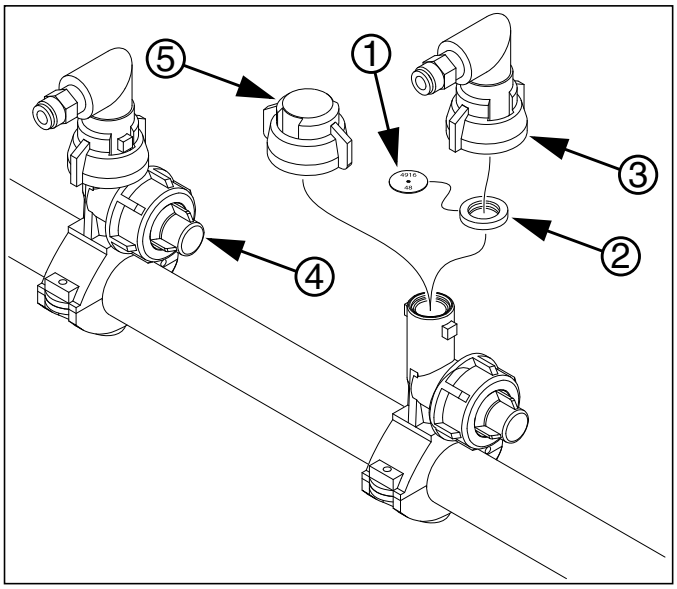


Figure 14 29984
Fertilizer Orifice Plate

Note: Replacement nozzles include gaskets. Gaskets may also be ordered separately as Great Plains part number CP18999-EPR.

Agricultural Chemical Hazard:
Wear protective gloves when changing orifice plates and strainer screens. Consult material manufacturer or supplier documents for proper handling and steps to take if skin contact occurs.

Orifice Size	Part Number	Port Diameter	Port Area
20	832-052C	0.020 in	0.20 mm²
28*	832-056C	0.028 in	0.40 mm²
34*	832-053C	0.034 in	0.59 mm²
48*	832-054C	0.048 in	1.17 mm²
59	832-057C	0.059 in	1.76 mm²
80	832-055C	0.080 in	3.24 mm²
98	832-059C	0.098 in	4.87 mm²

* Sizes standard in many fertilizer bundles. Check your accessories before ordering. 29993

Strainer

Refer to Figure 15

A Banjo brand strainer is supplied with the ground drive fertilizer pump. It is plumbed before the Hypro pump. The standard 80 mesh screen ① should be suitable for most applications. Other sizes are available from Banjo.

If changing screen sizes, keep in mind the following.

- A smaller mesh (100) will keep very small manifold orifice plates from plugging so often. However, the screen will have to be cleaned more often.
- A larger mesh (50) or (30) will pass more material but should only be considered when using large manifold orifice plates.
- A plugged or partially plugged screen will starve the pump resulting in a reduced application rate.
- Mesh sizes: (Smallest) 100, 80, 50, 30 (Largest)

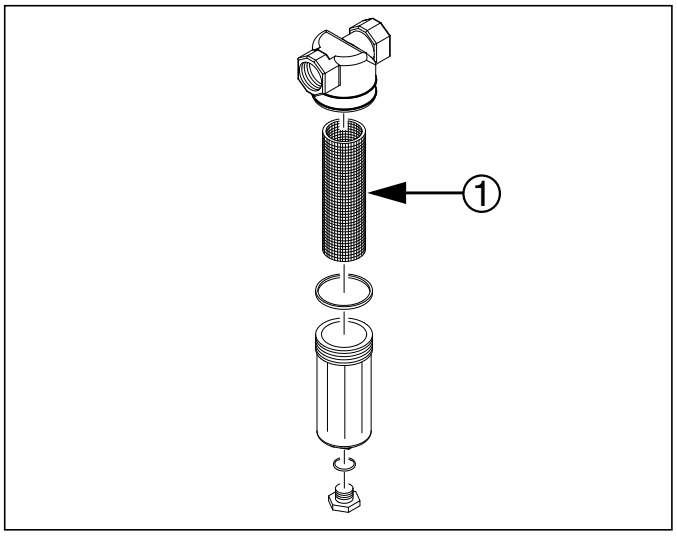


Figure 15 18418
Strainer

Agricultural Chemical Hazard:
Wear protective gloves when changing strainer screens. Consult material manufacturer or supplier documents for proper handling and steps to take if skin contact occurs.

Setting Relief Valve

Refer to Figure 16

A relief valve ② and pressure gauge ③ is mounted at front centre of cart on models NTA607/HD.

The relief valve protects the manifold, lines and fittings from excessive pressure. Any product that passes the relief valve will discharge from the dump line ④ in relative safety.

To set the relief valve:

1. Unlock plastic jam nut ⑤ from relief valve knob.
2. Unscrew knob ⑥ clockwise (looking down) until it loses contact with internal spring.
3. Screw knob ⑥ counter clockwise two turns. Start at this setting.
4. Observe manifold gauge ③ and watch for relief valve dump line ④ discharge while operating in the field.
5. If valve is dumping product and gauge reads under 65 psi, stop tractor and turn knob ⑥ clockwise $^1/_4$ turn. Continue operating at normal field speed. Repeat this step as needed until no product is discharged from relief valve dump line ④.
6. If the pressure gauge reads above 65 psi, change to a larger orifice. Go to step 2 and repeat.

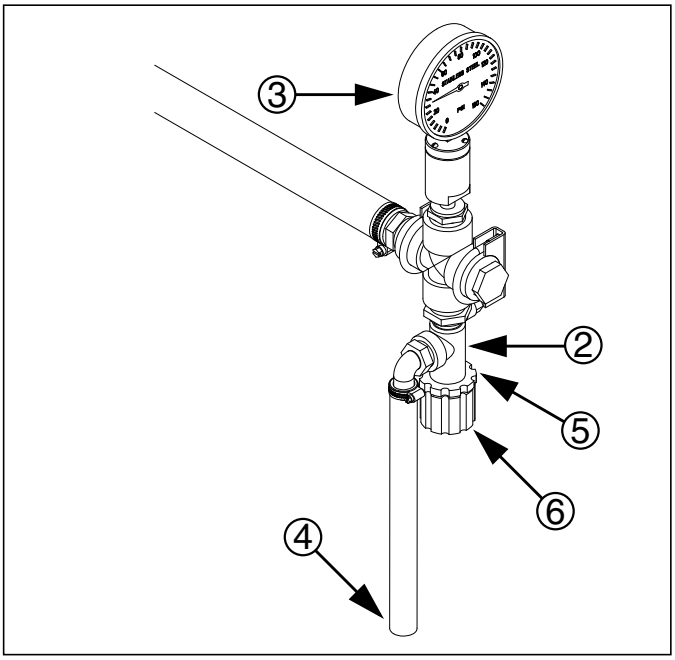


Figure 16 31017
Fertilizer Relief Valve

Web Fertilizer Rate

The most flexible way to determine rate setting is to use the flow rate calculator on the CDS-John Blue web site:
www.cds-johnblue.com/flow-rate-calculator.shtml
It provides precise pump settings at arbitrary rates and in all units of measure.

The four tables following provide supporting data needed with the web calculator. This data is valid for both drill-mounted pumps, and pumps on PFC1600 or PFC2000 carts. Both Great Plains systems use the same NGP-6055K pump.

Some notes:

- The loaded radius values are the actual effective radius of the ground drive or contact drive wheels, based on field results.
- Swath width is slightly higher on standard down flex models of NTA607/HD.
- To ease data entry, the tables list the net effective ratio (“As one stage”) of all ground drive stages.

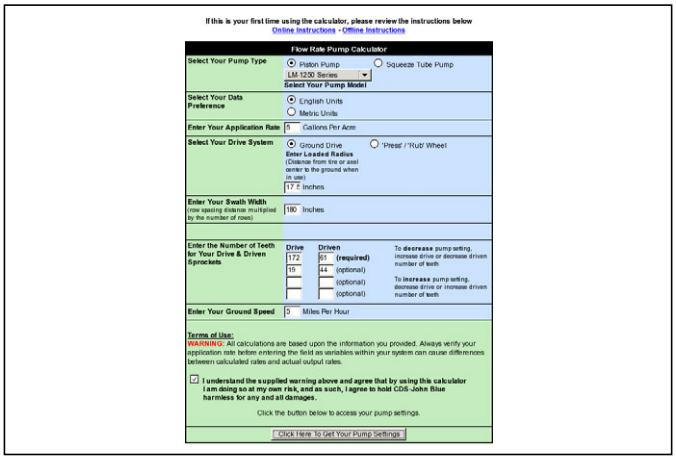


Figure 17 31317
CDS-John Blue Web Page

Web Data, Low Range, Metric

	NGP-6055K Pump - Web Calculator Data - Metric Units - Low Range							
Pump Type	Piston							
Pump Model	NGP-6050 Series							
Data Preference	Metric							
Application Rate	(Liters per Hectare)							
Drive System	Ground Drive							
Drill Model					**NTA607, NTA607HD**			
					-3275 Std.Flex	-3275 Ltd.Flex	-4006 Std.Flex	-4006 Ltd.Flex
Loaded Radius					24.03cm	24.03cm	24.03cm	24.03cm
Swath Width					614.7cm	609.6cm	622.3cm	609.6cm
Sprocket Stages	Drive:Driven	Drive:Driven	Drive:Driven	Drive:Driven	Drive:Driven	Drive:Driven	Drive:Driven	Drive:Driven
					25T : 25T	25T : 25T	25T : 25T	25T : 25T
					20T : 25T	20T : 25T	20T : 25T	20T : 25T
					17T : 15T	17T : 15T	17T : 15T	17T : 15T
As one stage					68T : 75T	68T : 75T	68T : 75T	68T : 75T
Ground Speed	kph (use 8 if speed not known)							

Slide Chart Fertilizer Rate

The CDS-John Blue NGP-6055K pump includes a 115797-01 (115698-91) slide chart for calculating pump settings.

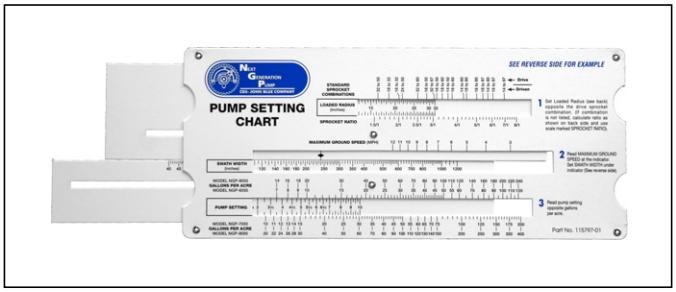
To make the scales on this chart easier to use, the following tables provide adjusted data values. These adjusted values produce results within 0.1% of the actual sprocket combinations and loaded radius values.

This data is valid for both drill-mounted pumps, and pumps on PFC1600 or PFC2000 carts. Both Great Plains systems use the same NGP-6055K pump.

1. Determine your desired application rate in gallons per acre. If you need to set metric rates, use the CDS-John Blue web calculator (see page 34).

On the slide chart:

2. Align the “LOADED RADIUS” on the upper sliding scale with the “SPROCKET RATIO” on the lower edge of the upper scale.
3. At chart centre, note the MAXIMUM GROUND SPEED above the diamond (◆) indicator. Any speed below this is within the pump limit of 550 rpm.
4. Use the lower sliding scale to align swath width of your drill under the diamond (◆).
5. At the bottom scale, on:
   “GALLONS PER ACRE MODEL NGP-6055 PUMP”
   find your desired application rate.
   Ignore the upper “NGP-8055”, and lower “NGP-7055”, “NGP-9055” scales (for different pumps).
6. At the “PUMP SETTING” scale, read the pump setting at your rate.



.eps 25.0% Figure 18 31319
CDS-John Blue Slide Chart

Note: These table values are not the actual radius and ratio. They are used both to make visual alignment easier, and because the actual radius is off scale for NTA607/HD.

Equipment Damage Risk:
Do not exceed a pump rpm of 550. If your proposed field speed is over 14.4 kph, use the CDS-John Blue web calculator to determine the pump rpm. Some high rates in High Range, at high speeds, can exceed 550 rpm.

Slide Chart Data

Low Range	Drill Model							
					NTA2007, NTA2007HD			
115797-01 Slide Chart Data					-3275 Std.Flex	-3275 Ltd.Flex	-4006 Std.Flex	-4006 Ltd.Flex
STANDARD SPROCKET COMBINATIONS	None (Use Sprocket Ratio scale. See narrative.)							
LOADED RADIUS[1]					25.0 in	25.0 in	25.0 in	25.0 in
SPROCKET RATIO[2]					2.4	2.4	2.4	2.4
SWATH WIDTH					242 in.	240 in.	245 in.	240 in.
GALLONS PER ACRE SCALE	(Use NGP-6055 scale.)							
PUMP SETTING	(Read below rate on gallons per acre scale.)							

[1] Adjusted: not the actual loaded radius (see narrative).

[2] Adjusted: not the actual sprocket ratio (see narrative).

Table Liquid Fertilizer Rates

These tables show pre-computed application rates for each half step of pump setting.

If you need to set metric rates, use the CDS-John Blue web calculator (see page 34).

NTA607/HD Sample Liquid Fertilizer Rates

NTA2007/HD Sample Fertilizer Rates U.S. Customary Units				
Model Wing Flex	**-3275 Standard**	**-4006 Standard**	**-3275 Limited**	**-4006 Limited**
Pump Setting	**Application Rate (Gallons/Acre)**			
2.0	3.7	3.7	3.7	3.7
2.5	4.6	4.6	4.7	4.7
3.0	5.6	5.5	5.6	5.6
3.5	6.5	6.4	6.6	6.6
4.0	7.4	7.3	7.5	7.5
4.5	8.4	8.3	8.4	8.4
5.0	9.3	9.2	9.4	9.4
5.5	10.2	10.1	10.3	10.3
6.0	11.1	11.0	11.2	11.2
6.5	12.1	11.9	12.2	12.2
7.0	13.0	12.8	13.1	13.1
7.5	13.9	13.8	14.1	14.1
8.0	14.9	14.7	15.0	15.0
8.5	15.8	15.6	15.9	15.9
9.0	16.7	16.5	16.9	16.9
9.5	17.7	17.4	17.8	17.8
10.0	18.6	18.4	18.7	18.7
Ground Speed	<your election - above 2 mph>			

NTA607/HD Sample Fertilizer Rates Metric Units				
Model Wing Flex	**-3275 Standard**	**-4006 Standard**	**-3275 Limited**	**-4006 Limited**
Pump Setting	**Application Rate (Liters/Hectare)**			
2.0	35	34	35	35
2.5	43	43	44	44
3.0	52	52	53	53
3.5	61	60	61	61
4.0	70	69	70	70
4.5	78	77	79	79
5.0	87	86	88	88
5.5	96	94	96	96
6.0	104	103	105	105
6.5	113	112	114	114
7.0	122	120	123	123
7.5	130	129	131	131
8.0	139	137	140	140
8.5	148	146	149	149
9.0	156	155	158	158
9.5	165	163	166	166
10.0	174	172	175	175
Ground Speed	<your election - above 3 kph>			

NTA607/HD Sample Liquid Fertilizer Rates

NTA607/HD Sample Fertilizer Rates Metric Units				
Model Wing Flex	**-3275 Standard**	**-4006 Standard**	**-3275 Limited**	**-4006 Limited**
Pump Setting	**Application Rate (Liters/Hectare)**			
2.0	35	34	35	35
2.5	43	43	44	44
3.0	52	52	53	53
3.5	61	60	61	61
4.0	70	69	70	70
4.5	78	77	79	79
5.0	87	86	88	88
5.5	96	94	96	96
6.0	104	103	105	105
6.5	113	112	114	114
7.0	122	120	123	123
7.5	130	129	131	131
8.0	139	137	140	140
8.5	148	146	149	149
9.0	156	155	158	158
9.5	165	163	166	166
10.0	174	172	175	175
Ground Speed	<your election - above 3 kph>			

Appendix

Density Adjustment

If your material (seed or fertilizer) has a density that is materially different from the reference material listed at the top of each table, you can compensate for it.

Density variance is only one of many factors that can cause an actual rate to vary from a table rate. Compensating your initial target rate helps reduce the error, but rely on calibration for the most accurate field results.

1. Weigh a known volume of your material, and compute the density in the same units used in the table (kilograms per litre). Be sure to subtract out the container weight.

   The example table is based on 0.96 kg/litre reference material that is 134% heavier. If the table values for 50.0 kg/litre, a variable rate gearbox setting of 32, and a Calibration Constant of 82478, are used, too little material will be applied.

2. Divide the reference material density by the measured actual material density, to obtain a correction factor.

   $$Factor = \frac{ReferenceMaterialDensity}{MeasuredMaterialDensity}$$

3. Multiply the target field rate by the factor to yield an adjusted table rate.

   $$AdjustedRate = FieldRate \times Factor$$

4. Look up the adjusted rate in the table, and use the settings for it.

Note: If the adjusted table rate would correspond to an apparent variable rate gearbox setting below 20, use another table (Low Range table or lower Flute Stars table).

Example: target dry fertilizer rate is 56 kg/Ha

Example: sample weight is:
4 litres weighs 2.9 kg.

Your material density is:
0.72 kg/litre

Example: factor calculation
table mtl: 0.96 kg/litre
factor: 0.96 ÷ 0.72
which is: 1.34

Example: density adjustment
if the target field rate is 56 kg per hectare, the adjusted table rate is:
56 x 1.34
which is an adjusted target rate of: 75 kg/ha

Example: adjusted rate look-up
Look up 75.
Closest table value is 76.3
Use those settings:
(Gearbox 37, Cal.Const. 83099) and calibrate

High Rate Flute Sowing Tables

Oats (3 Stars)

Final Drive Range Gears	Stars Per Outlet	Seed Density	Remarks:
High Range 54T Driving; 17T Driven	3 (requires kit)	0.50 kg/litre	See table Notes.

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
0	0	-
18.2	20	1781
20.0	21	1785
22.0	22	1789
24.0	23	1793
26.2	24	1797
28.6	25	1800
31.0	26	1803
33.6	27	1806
36.3	28	1808
39.1	29	1811
42.1	30	1813
45.1	31	1814
48.3	32	1816
51.6	33	1817
55.1	34	1819
58.6	35	1820
62.3	36	1821
66.0	37	1821
69.9	38	1822
73.9	39	1823
78.0	40	1823
82.2	41	1824
86.6	42	1824
91.0	43	1825
95.5	44	1825
100.1	45	1826

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
104.9	46	1826
109.7	47	1827
114.6	48	1827
119.6	49	1828
124.7	50	1828
129.9	51	1829
135.2	52	1830
140.5	53	1831
145.9	54	1833
151.4	55	1834
156.9	56	1836
162.5	57	1838
168.1	58	1840
173.8	59	1842
179.6	60	1845
185.4	61	1848
191.2	62	1851
197.0	63	1854
202.8	64	1858
208.7	65	1863
214.5	66	1867
220.4	67	1872
226.2	68	1878
232.0	69	1884
237.8	70	1890
243.6	71	1897
249.3	72	1905

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
254.9	73	1913
260.5	74	1922
266.0	75	1931
271.4	76	1941
276.7	77	1952
281.9	78	1964
286.9	79	1976
291.9	80	1989
296.6	81	2004
301.3	82	2019
305.7	83	2035
310.0	84	2052
314.0	85	2071
317.9	86	2090
321.5	87	2111
324.8	88	2134
328.0	89	2157
330.8	90	2183
333.3	91	2210
335.5	92	2239
337.5	93	2271
339.0	94	2304
340.2	95	2340
341.0	96	2378
341.5	97	2419
341.5	98	2463
341.1	99	2511

Oats (3 Stars)

* Pulses per litre

31299m

Notes:

Stated seed density is measured, and not customary commodity call weight. If your seed has a significantly different density, see "**Density Adjustment**" on page 39.

Table rates are for application from a single hopper at a time (whether or not both are loaded with the same material). For application of the same material from both hoppers simultaneously, do not use the target rate data. First divide the target rate by two, and use the setting for that half rate. Use that target rate for calibrating each meter.

Oats (4 Stars)

Final Drive Range Gears	Stars Per Outlet	Seed Density	Remarks:
High Range 54T Driving; 17T Driven	4 (requires kit)	0.50 kg/litre	See table Notes.

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
0	0	-
24.9	20	1331
27.5	21	1332
30.3	22	1333
33.3	23	1334
36.4	24	1335
39.6	25	1336
43.1	26	1337
46.6	27	1338
50.4	28	1339
54.3	29	1340
58.3	30	1341
62.5	31	1342
66.9	32	1343
71.4	33	1344
76.0	34	1345
80.8	35	1347
85.7	36	1348
90.7	37	1349
95.9	38	1351
101.2	39	1352
106.7	40	1354
112.2	41	1355
117.9	42	1357
123.7	43	1358
129.6	44	1360
135.6	45	1362
141.8	46	1363
148.0	47	1365
154.4	48	1367
160.8	49	1369
167.4	50	1371
174.1	51	1373
180.8	52	1375
187.6	53	1378
194.6	54	1380
201.6	55	1382
208.6	56	1384
215.8	57	1387
223.1	58	1389
230.4	59	1392
237.7	60	1395
245.2	61	1397
252.7	62	1400
260.3	63	1403
267.9	64	1406
275.5	65	1409
283.3	66	1412
291.0	67	1415
298.8	68	1419
306.6	69	1422
314.5	70	1426
322.4	71	1429
330.3	72	1433
338.3	73	1436
346.2	74	1440
354.2	75	1444
362.2	76	1448
370.2	77	1452
378.2	78	1457
386.2	79	1461
394.2	80	1466
402.2	81	1470
410.1	82	1475
418.1	83	1480
426.0	84	1485
433.9	85	1490
441.8	86	1495
449.6	87	1500
457.4	88	1506
465.2	89	1512
472.9	90	1517
480.6	91	1523
488.2	92	1529
495.7	93	1536
503.2	94	1542
510.6	95	1549
518.0	96	1555
525.3	97	1562
532.4	98	1569
539.5	99	1577

Oats (4 Stars) * Pulses per litre 31300m

Notes:

Stated seed density is measured, and not customary commodity call weight. If your seed has a significantly different density, see "**Density Adjustment**" on page 39.

Table rates are for application from a single hopper at a time (whether or not both are loaded with the same material). For application of the same material from both hoppers simultaneously, do not use the target rate data. First divide the target rate by two, and use the setting for that half rate. Use that target rate for calibrating each meter.

Peas (3 Stars)

Final Drive Range Gears	Stars Per Outlet	Seed Density	Remarks:
High Range 54T Driving; 17T Driven	3 (requires kit)	0.71 kg/litre	See table Notes.

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
0	0	-
15.3	20	2033
17.4	21	2034
19.6	22	2035
22.0	23	2036
24.6	24	2038
27.3	25	2040
30.2	26	2043
33.2	27	2046
36.4	28	2049
39.8	29	2053
43.2	30	2057
46.8	31	2061
50.6	32	2066
54.5	33	2071
58.4	34	2077
62.5	35	2083
66.8	36	2089
71.1	37	2096
75.5	38	2103
80.0	39	2111
84.6	40	2119
89.3	41	2127
94.1	42	2136
99.0	43	2145
103.9	44	2154
108.9	45	2165
113.9	46	2175
119.0	47	2186
124.1	48	2197
129.3	49	2209
134.5	50	2221
139.7	51	2234
145.0	52	2247
150.3	53	2261
155.6	54	2275
160.8	55	2290
166.1	56	2305
171.4	57	2321
176.7	58	2337
181.9	59	2354
187.2	60	2371
192.4	61	2389
197.5	62	2408
202.6	63	2427
207.7	64	2447
212.7	65	2467
217.7	66	2488
222.6	67	2510
227.4	68	2532
232.2	69	2556
236.8	70	2579
241.4	71	2604
245.9	72	2630
250.3	73	2656
254.6	74	2683
258.8	75	2711
262.9	76	2740
266.9	77	2770
270.7	78	2800
274.5	79	2832
278.1	80	2865
281.5	81	2899
284.9	82	2934
288.0	83	2970
291.1	84	3007
294.0	85	3046
296.7	86	3085
299.3	87	3127
301.7	88	3169
304.0	89	3213
306.1	90	3259
308.0	91	3306
309.7	92	3355
311.3	93	3405
312.7	94	3458
313.9	95	3512
314.9	96	3568
315.8	97	3627
316.4	98	3687
316.9	99	3750

Peas (3 Stars)

* Pulses per litre

31302m

Notes:

Stated seed density is measured, and not customary commodity call weight. If your seed has a significantly different density, see "**Density Adjustment**" on page 39.

Table rates are for application from a single hopper at a time (whether or not both are loaded with the same material). For application of the same material from both hoppers simultaneously, do not use the target rate data. First divide the target rate by two, and use the setting for that half rate. Use that target rate for calibrating each meter.

Peas (4 Stars)

Final Drive Range Gears	Stars Per Outlet	Seed Density	Remarks:
High Range 54T Driving; 17T Driven	4 (requires kit)	0.71 kg/litre	See table Notes.

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*	Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*	Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
0	0	-	179.7	46	1448	414.7	73	1642
26.8	20	1406	187.8	47	1452	422.9	74	1654
30.0	21	1405	196.1	48	1456	431.1	75	1666
33.5	22	1405	204.4	49	1460	439.0	76	1679
37.2	23	1405	212.9	50	1465	446.9	77	1692
41.1	24	1405	221.4	51	1470	454.6	78	1705
45.3	25	1405	230.0	52	1475	462.1	79	1719
49.7	26	1406	238.7	53	1480	469.4	80	1734
54.4	27	1406	247.4	54	1485	476.6	81	1749
59.3	28	1407	256.2	55	1491	483.6	82	1765
64.4	29	1408	265.1	56	1497	490.4	83	1781
69.7	30	1409	274.0	57	1503	496.9	84	1798
75.2	31	1410	282.9	58	1510	503.3	85	1815
80.9	32	1411	291.9	59	1516	509.4	86	1833
86.9	33	1413	300.8	60	1523	515.2	87	1852
93.0	34	1415	309.8	61	1531	520.8	88	1872
99.3	35	1416	318.8	62	1538	526.2	89	1892
105.8	36	1418	327.7	63	1546	531.2	90	1914
112.5	37	1420	336.7	64	1554	536.0	91	1936
119.3	38	1423	345.6	65	1562	540.5	92	1959
126.4	39	1425	354.4	66	1571	544.6	93	1983
133.5	40	1428	363.3	67	1580	548.5	94	2008
140.9	41	1431	372.0	68	1590	552.0	95	2034
148.4	42	1434	380.7	69	1599	555.2	96	2061
156.0	43	1437	389.4	70	1610	558.0	97	2089
163.8	44	1440	397.9	71	1620	560.5	98	2119
171.7	45	1444	406.4	72	1631	562.6	99	2149

Peas (4 Stars) * Pulses per litre 31303m

Notes:

Stated seed density is measured, and not customary commodity call weight. If your seed has a significantly different density, see "**Density Adjustment**" on page 39.

Table rates are for application from a single hopper at a time (whether or not both are loaded with the same material). For application of the same material from both hoppers simultaneously, do not use the target rate data. First divide the target rate by two, and use the setting for that half rate. Use that target rate for calibrating each meter.

Soybeans (3 Stars)

Final Drive Range Gears	Stars Per Outlet	Seed Density	Remarks:
High Range 54T Driving; 17T Driven	3 (requires kit)	0.73 kg/litre	See table Notes.

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
0	0	-
18.8	20	1800
21.6	21	1803
24.6	22	1806
27.7	23	1809
31.0	24	1812
34.5	25	1815
38.1	26	1818
41.9	27	1822
45.8	28	1825
49.9	29	1828
54.1	30	1831
58.5	31	1835
63.0	32	1838
67.7	33	1841
72.5	34	1845
77.4	35	1848
82.5	36	1852
87.7	37	1856
93.0	38	1860
98.5	39	1864
104.1	40	1868
109.8	41	1872
115.6	42	1876
121.5	43	1880
127.5	44	1885
133.7	45	1890
139.9	46	1894
146.2	47	1899
152.6	48	1904
159.1	49	1910
165.7	50	1915
172.4	51	1921
179.1	52	1927
185.9	53	1933
192.8	54	1939
199.7	55	1946
206.6	56	1952
213.7	57	1959
220.7	58	1967
227.8	59	1974
234.9	60	1982
242.1	61	1990
249.2	62	1999
256.4	63	2007
263.5	64	2016
270.7	65	2026
277.9	66	2036
285.0	67	2046
292.1	68	2056
299.2	69	2067
306.2	70	2079
313.2	71	2091
320.1	72	2103
327.0	73	2116
333.8	74	2129
340.5	75	2143
347.1	76	2157
353.7	77	2172
360.1	78	2188
366.4	79	2204
372.6	80	2221
378.6	81	2239
384.5	82	2258
390.2	83	2277
395.8	84	2297
401.2	85	2318
406.4	86	2340
411.4	87	2363
416.2	88	2387
420.8	89	2412
425.1	90	2438
429.2	91	2465
433.1	92	2494
436.7	93	2524
440.0	94	2556
443.0	95	2589
445.7	96	2624
448.1	97	2660
450.1	98	2699
451.8	99	2739

Soybeans (3 Stars)

* Pulses per litre

31305m

Notes:

Stated seed density is measured, and not customary commodity call weight. If your seed has a significantly different density, see "**Density Adjustment**" on page 39.

Table rates are for application from a single hopper at a time (whether or not both are loaded with the same material). For application of the same material from both hoppers simultaneously, do not use the target rate data. First divide the target rate by two, and use the setting for that half rate. Use that target rate for calibrating each meter.

Soybeans (4 Stars)

Final Drive Range Gears	Stars Per Outlet	Seed Density	Remarks:
High Range 54T Driving; 17T Driven	4 (requires kit)	0.73 kg/litre	See table Notes.

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
0	0	-
32.8	20	1290
36.8	21	1291
41.0	22	1293
45.5	23	1294
50.1	24	1295
55.0	25	1296
60.2	26	1298
65.5	27	1299
71.1	28	1300
76.8	29	1302
82.8	30	1303
89.0	31	1304
95.4	32	1306
102.0	33	1307
108.9	34	1308
115.9	35	1310
123.1	36	1311
130.5	37	1313
138.1	38	1314
145.9	39	1316
153.8	40	1318
162.0	41	1319
170.3	42	1321
178.8	43	1323
187.5	44	1325
196.3	45	1327
205.3	46	1329
214.4	47	1331
223.7	48	1333
233.2	49	1335
242.8	50	1337
252.5	51	1340
262.4	52	1342
272.4	53	1345
282.5	54	1348
292.7	55	1350
303.1	56	1353
313.5	57	1356
324.1	58	1360
334.7	59	1363
345.5	60	1366
356.3	61	1370
367.2	62	1374
378.1	63	1378
389.2	64	1382
400.2	65	1386
411.3	66	1390
422.5	67	1395
433.7	68	1400
444.9	69	1405
456.1	70	1410
467.3	71	1415
478.5	72	1421
489.7	73	1426
500.9	74	1432
512.0	75	1439
523.1	76	1445
534.1	77	1452
545.1	78	1459
556.0	79	1466
566.8	80	1474
577.5	81	1482
588.1	82	1490
598.6	83	1499
608.9	84	1508
619.1	85	1517
629.2	86	1527
639.0	87	1537
648.7	88	1547
658.2	89	1558
667.5	90	1570
676.5	91	1581
685.4	92	1594
693.9	93	1607
702.2	94	1620
710.3	95	1634
718.0	96	1649
725.4	97	1664
732.5	98	1680
739.2	99	1696

Soybeans (4 Stars)

* Pulses per litre

31306m

Notes:

Stated seed density is measured, and not customary commodity call weight. If your seed has a significantly different density, see "**Density Adjustment**" on page 39.

Table rates are for application from a single hopper at a time (whether or not both are loaded with the same material). For application of the same material from both hoppers simultaneously, do not use the target rate data. First divide the target rate by two, and use the setting for that half rate. Use that target rate for calibrating each meter.

Wheat (3 Stars)

Final Drive Range Gears	Stars Per Outlet	Seed Density	Remarks:
High Range 54T Driving; 17T Driven	3 (requires kit)	0.79 kg/litre	See table Notes.

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
0	0	-
29.1	20	1776
32.1	21	1780
35.3	22	1783
38.8	23	1787
42.4	24	1790
46.2	25	1792
50.2	26	1795
54.4	27	1797
58.8	28	1799
63.4	29	1801
68.1	30	1803
73.1	31	1805
78.2	32	1806
83.5	33	1808
89.0	34	1809
94.7	35	1810
100.6	36	1811
106.6	37	1812
112.9	38	1813
119.2	39	1814
125.8	40	1815
132.5	41	1815
139.4	42	1816
146.4	43	1817
153.7	44	1818
161.0	45	1819
168.5	46	1819
176.2	47	1820
184.0	48	1821
191.9	49	1822
200.0	50	1823
208.2	51	1825
216.5	52	1826
224.9	53	1828
233.5	54	1829
242.2	55	1831
250.9	56	1833
259.8	57	1835
268.7	58	1838
277.7	59	1840
286.8	60	1843
295.9	61	1846
305.1	62	1850
314.4	63	1853
323.6	64	1857
332.9	65	1862
342.3	66	1866
351.6	67	1871
360.9	68	1877
370.2	69	1883
379.4	70	1889
388.6	71	1896
397.8	72	1903
406.9	73	1911
415.9	74	1919
424.8	75	1928
433.6	76	1937
442.2	77	1947
450.7	78	1958
459.1	79	1969
467.3	80	1981
475.3	81	1994
483.0	82	2007
490.6	83	2022
497.9	84	2037
504.9	85	2054
511.7	86	2071
518.1	87	2089
524.2	88	2109
530.0	89	2130
535.4	90	2152
540.4	91	2175
545.0	92	2200
549.2	93	2227
552.9	94	2255
556.1	95	2285
558.8	96	2317
561.0	97	2351
562.6	98	2388
563.6	99	2427

Wheat (3 Stars)

* Pulses per litre

31309m

Notes:

Stated seed density is measured, and not customary commodity call weight. If your seed has a significantly different density, see "**Density Adjustment**" on page 39.

Table rates are for application from a single hopper at a time (whether or not both are loaded with the same material). For application of the same material from both hoppers simultaneously, do not use the target rate data. First divide the target rate by two, and use the setting for that half rate. Use that target rate for calibrating each meter.

Wheat (4 Stars)

Final Drive Range Gears	Stars Per Outlet	Seed Density	Remarks:
High Range 54T Driving; 17T Driven	4 (requires kit)	0.79 kg/litre	See table Notes.

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
0	0	-
33.6	20	1327
38.1	21	1328
42.8	22	1329
47.7	23	1329
52.9	24	1330
58.3	25	1331
63.9	26	1331
69.8	27	1332
75.8	28	1333
82.1	29	1333
88.7	30	1334
95.4	31	1334
102.4	32	1334
109.6	33	1335
117.0	34	1335
124.7	35	1335
132.5	36	1336
140.6	37	1336
148.9	38	1336
157.4	39	1337
166.1	40	1337
175.0	41	1338
184.1	42	1338
193.4	43	1338
203.0	44	1339
212.7	45	1339
222.6	46	1340
232.7	47	1340
243.0	48	1341
253.5	49	1341
264.1	50	1342
275.0	51	1343
286.0	52	1343
297.2	53	1344
308.6	54	1345
320.1	55	1346
331.8	56	1347
343.6	57	1348
355.6	58	1349
367.7	59	1351
380.0	60	1352
392.4	61	1354
405.0	62	1355
417.6	63	1357
430.4	64	1359
443.3	65	1361
456.2	66	1363
469.3	67	1365
482.5	68	1367
495.7	69	1370
509.0	70	1372
522.4	71	1375
535.8	72	1378
549.3	73	1381
562.8	74	1384
576.4	75	1388
589.9	76	1391
603.5	77	1395
617.1	78	1399
630.6	79	1404
644.2	80	1408
657.7	81	1413
671.1	82	1418
684.5	83	1423
697.8	84	1428
711.1	85	1434
724.2	86	1440
737.2	87	1446
750.1	88	1453
762.9	89	1460
775.5	90	1467
788.0	91	1475
800.2	92	1483
812.3	93	1491
824.2	94	1500
835.8	95	1509
847.2	96	1518
858.3	97	1528
869.2	98	1539
879.7	99	1550

Wheat (4 Stars)

* Pulses per litre

31310m

Notes:

Stated seed density is measured, and not customary commodity call weight. If your seed has a significantly different density, see "**Density Adjustment**" on page 39.

Table rates are for application from a single hopper at a time (whether or not both are loaded with the same material). For application of the same material from both hoppers simultaneously, do not use the target rate data. First divide the target rate by two, and use the setting for that half rate. Use that target rate for calibrating each meter.

Fertilizer Rates (3 Stars)

Final Drive Range Gears	Stars Per Outlet	Material Density	Remarks:
High Range 54T Driving; 17T Driven	3 (requires kit)	0.96 kg/litre	Based on 11-52-0. See also table Notes.

Material Rate kg/ha	Gearbox Setting	Cal. Const.*
0	0	-
30.4	20	1888
33.8	21	1889
37.5	22	1889
41.3	23	1890
45.4	24	1891
49.7	25	1891
54.3	26	1892
59.0	27	1893
63.9	28	1894
69.1	29	1895
74.5	30	1896
80.0	31	1898
85.8	32	1899
91.8	33	1901
97.9	34	1902
104.3	35	1904
110.8	36	1906
117.5	37	1908
124.4	38	1911
131.4	39	1913
138.6	40	1915
146.0	41	1918
153.5	42	1921
161.2	43	1924
169.1	44	1927
177.0	45	1931

Material Rate kg/ha	Gearbox Setting	Cal. Const.*
185.1	46	1934
193.4	47	1938
201.7	48	1942
210.2	49	1947
218.8	50	1951
227.5	51	1956
236.3	52	1961
245.2	53	1966
254.2	54	1972
263.3	55	1977
272.4	56	1983
281.6	57	1990
290.8	58	1997
300.1	59	2003
309.4	60	2011
318.8	61	2018
328.2	62	2026
337.6	63	2035
347.0	64	2044
356.3	65	2053
365.7	66	2062
375.1	67	2072
384.4	68	2083
393.6	69	2093
402.8	70	2105
412.0	71	2117
421.0	72	2129

Material Rate kg/ha	Gearbox Setting	Cal. Const.*
430.0	73	2142
438.9	74	2155
447.6	75	2169
456.3	76	2184
464.8	77	2199
473.1	78	2215
481.3	79	2232
489.3	80	2249
497.1	81	2268
504.7	82	2287
512.1	83	2307
519.3	84	2327
526.3	85	2349
532.9	86	2372
539.3	87	2395
545.4	88	2420
551.3	89	2446
556.8	90	2474
561.9	91	2502
566.8	92	2532
571.2	93	2563
575.3	94	2596
579.0	95	2631
582.2	96	2667
585.1	97	2706
587.5	98	2746
589.4	99	2788

Dry Fertilizer Rates (3 Stars)

* Pulses per litre

31312m

Notes:

If your material has a significantly different density, see "**Density Adjustment**" on page 39.

Table rates are for application from a single hopper at a time (whether or not both are loaded with the same material). For application of the same material from both hoppers simultaneously, do not use the target rate data. First divide the target rate by two, and use the setting for that half rate. Use that target rate for calibrating each meter.

Fertilizer Rates (4 Stars)

Final Drive Range Gears	Stars Per Outlet	Material Density	Remarks:
High Range 54T Driving; 17T Driven	4 (requires kit)	0.96 kg/litre	Based on 11-52-0. See also table Notes.

Material Rate kg/ha	Gearbox Setting	Cal. Const.*
0	0	-
40.3	20	1402
45.2	21	1404
50.3	22	1405
55.8	23	1406
61.5	24	1408
67.5	25	1409
73.8	26	1410
80.3	27	1412
87.2	28	1413
94.3	29	1415
101.6	30	1416
109.3	31	1417
117.1	32	1419
125.3	33	1420
133.7	34	1422
142.3	35	1423
151.2	36	1425
160.4	37	1426
169.7	38	1428
179.3	39	1430
189.2	40	1432
199.2	41	1433
209.5	42	1435
219.9	43	1437
230.6	44	1439
241.5	45	1441
252.6	46	1444
263.9	47	1446
275.4	48	1448
287.0	49	1451
298.8	50	1453
310.8	51	1456
323.0	52	1459
335.3	53	1462
347.7	54	1465
360.3	55	1468
373.0	56	1472
385.8	57	1475
398.8	58	1479
411.8	59	1482
425.0	60	1486
438.2	61	1490
451.5	62	1495
464.9	63	1499
478.4	64	1504
491.9	65	1509
505.4	66	1514
519.0	67	1519
532.5	68	1525
546.1	69	1530
559.7	70	1536
573.3	71	1543
586.8	72	1549
600.3	73	1556
613.8	74	1563
627.1	75	1570
640.4	76	1578
653.6	77	1586
666.7	78	1594
679.7	79	1603
692.5	80	1612
705.2	81	1621
717.7	82	1631
730.1	83	1641
742.2	84	1652
754.1	85	1663
765.8	86	1674
777.3	87	1686
788.4	88	1699
799.3	89	1712
809.9	90	1726
820.2	91	1740
830.1	92	1755
839.7	93	1770
848.9	94	1787
857.7	95	1804
866.1	96	1821
874.0	97	1840
881.5	98	1859
888.6	99	1880

Dry Fertilizer Rates (4 Stars) * Pulses per litre 31313m

Notes:

If your material has a significantly different density, see "**Density Adjustment**" on page 39.

Table rates are for application from a single hopper at a time (whether or not both are loaded with the same material). For application of the same material from both hoppers simultaneously, do not use the target rate data. First divide the target rate by two, and use the setting for that half rate. Use that target rate for calibrating each meter.

Small Seeds Sowing Tables

The tables on page 52 through page 63 are for smaller seeds when using a meter that has the optional Small Seeds flute shaft installed.

Refer to Figure 19 (which depicts the 4-of-6 outlet style flute shafts used on Models NTA907/HD)
Standard seed meters have shafts ② with two deep fluted wheels (“stars”) and two filler rings in each active meter compartment.

An alternate flute shaft is available for small seeds ⓢ. Part numbers vary by drill model. Consult the Options section of your Operator Manual for ordering information.

The Small Seeds accessory replaces the existing 2-star shaft assembly ② with one having a shallower and narrower star configuration. This provides lower seeding rates for the same Range and variable rate gearbox setting. See “**Changing Meter Flutes**” in your drill Operator Manual for installation instructions.

For small seeds (see list at right) or other seeds smaller than 12×4.7 mm, the standard shaft may not provide sufficient precision and uniform flow at very low rates. The small seeds flute shaft ⓢ is available that provides two half-width shallow flute stars per compartment.

For compatible seeds, replacing the standard 2-star shaft with the small seeds shaft ⓢ reduces the seeding rate by approximately 50 to 80% (to a net 50% to 20% of standard rate).

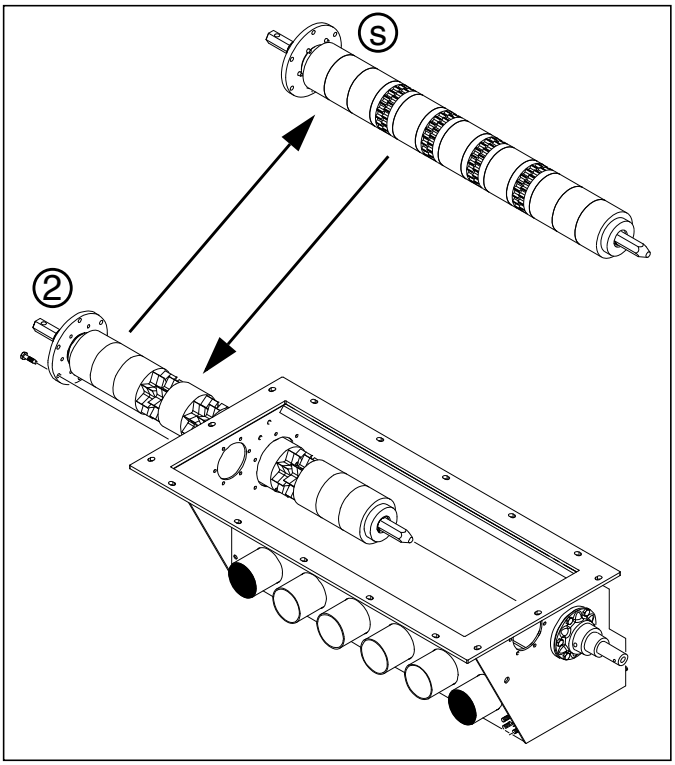


Figure 19 32398
Exchanging Flute Shafts

Alfalfa *(Medicago sativa)*

Small Seeds Stars, Low Range

Final Drive Range Gears	Stars Per Outlet	Seed Density	Remarks:
Low Range 17T Driving; 54T Driven	2 Small Seeds (requires kit)	0.62 kg/litre	See table Notes.

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
0	0	-
0.3	20	48210
0.3	21	48131
0.4	22	48053
0.4	23	47977
0.5	24	47901
0.5	25	47827
0.6	26	47753
0.6	27	47681
0.7	28	47610
0.7	29	47541
0.8	30	47472
0.8	31	47405
0.9	32	47338
1.0	33	47273
1.0	34	47209
1.1	35	47147
1.2	36	47085
1.2	37	47025
1.3	38	46966
1.4	39	46908
1.4	40	46852
1.5	41	46797
1.6	42	46743
1.7	43	46690
1.8	44	46639
1.8	45	46589
1.9	46	46540
2.0	47	46493
2.1	48	46447
2.2	49	46402
2.3	50	46359
2.4	51	46317
2.5	52	46276
2.6	53	46237
2.7	54	46199
2.8	55	46163
2.9	56	46128
3.0	57	46094
3.1	58	46062
3.2	59	46032
3.3	60	46002
3.5	61	45975
3.6	62	45949
3.7	63	45924
3.8	64	45901
3.9	65	45879
4.1	66	45859
4.2	67	45840
4.3	68	45823
4.4	69	45808
4.6	70	45794
4.7	71	45782
4.8	72	45771
5.0	73	45762
5.1	74	45755
5.2	75	45750
5.4	76	45746
5.5	77	45743
5.7	78	45743
5.8	79	45744
5.9	80	45747
6.1	81	45752
6.2	82	45759
6.4	83	45767
6.5	84	45777
6.7	85	45789
6.9	86	45803
7.0	87	45819
7.2	88	45837
7.3	89	45856
7.5	90	45878
7.6	91	45901
7.8	92	45927
8.0	93	45955
8.1	94	45984
8.3	95	46016
8.5	96	46050
8.6	97	46086
8.8	98	46124
9.0	99	46164

Alfalfa (Low Range)

* Pulses per litre

32423m

Notes:

Stated seed density is measured, and not customary commodity call weight. If your seed has a significantly different density, see "**Density Adjustment**" on page 39.

Table rates are for application from a single hopper at a time (whether or not both are loaded with the same material). For application of the same material from both hoppers simultaneously, do not use the target rate data. First divide the target rate by two, and use the setting for that half rate. Use that target rate for calibrating each meter.

Alfalfa

Small Seeds Stars, High Range

Final Drive Range Gears	Stars Per Outlet	Seed Density	Remarks:
High Range 17T Driving; 54T Driven	2 Small Seeds (requires kit)	0.62 kg/litre	See table Notes.

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
0	0	-
3.0	20	48454
3.4	21	48264
3.9	22	48082
4.3	23	47908
4.8	24	47742
5.2	25	47584
5.7	26	47433
6.2	27	47290
6.8	28	47154
7.3	29	47024
7.9	30	46901
8.5	31	46784
9.1	32	46673
9.8	33	46568
10.4	34	46469
11.1	35	46375
11.8	36	46287
12.5	37	46204
13.3	38	46126
14.0	39	46053
14.8	40	45985
15.6	41	45921
16.4	42	45862
17.2	43	45807
18.1	44	45756
19.0	45	45710

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
19.8	46	45667
20.7	47	45628
21.7	48	45593
22.6	49	45561
23.6	50	45533
24.6	51	45508
25.5	52	45486
26.6	53	45468
27.6	54	45452
28.6	55	45439
29.7	56	45429
30.8	57	45422
31.9	58	45417
33.0	59	45415
34.1	60	45414
35.3	61	45417
36.4	62	45421
37.6	63	45427
38.8	64	45435
40.0	65	45446
41.2	66	45457
42.5	67	45471
43.7	68	45486
45.0	69	45502
46.3	70	45520
47.6	71	45539
48.9	72	45559

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
50.3	73	45580
51.6	74	45602
53.0	75	45624
54.4	76	45648
55.8	77	45672
57.2	78	45696
58.6	79	45721
60.0	80	45746
61.5	81	45772
63.0	82	45797
64.5	83	45823
66.0	84	45848
67.5	85	45873
69.0	86	45898
70.6	87	45922
72.1	88	45946
73.7	89	45969
75.3	90	45992
77.0	91	46013
78.6	92	46034
80.3	93	46053
81.9	94	46071
83.6	95	46088
85.3	96	46104
87.1	97	46117
88.8	98	46130
90.6	99	46140

Alfalfa (High Range)

* Pulses per litre

32424m

Notes:

Stated seed density is measured, and not customary commodity call weight. If your seed has a significantly different density, see "**Density Adjustment**" on page 39.

Table rates are for application from a single hopper at a time (whether or not both are loaded with the same material). For application of the same material from both hoppers simultaneously, do not use the target rate data. First divide the target rate by two, and use the setting for that half rate. Use that target rate for calibrating each meter.

Canola *(Brassica napus L., Brassica campestris L., Brassica Rapa var)*

Small Seeds Stars, Low Range

Final Drive Range Gears	Stars Per Outlet	Seed Density	Remarks:
Low Range 17T Driving; 54T Driven	2 Small Seeds (requires kit)	0.51 kg/litre	See table Notes.

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
0	0	-
0.3	20	36565
0.4	21	36501
0.4	22	36440
0.5	23	36382
0.5	24	36328
0.6	25	36276
0.6	26	36228
0.7	27	36182
0.7	28	36139
0.8	29	36099
0.8	30	36061
0.9	31	36026
1.0	32	35994
1.0	33	35963
1.1	34	35935
1.2	35	35909
1.2	36	35886
1.3	37	35864
1.4	38	35844
1.5	39	35826
1.6	40	35810
1.6	41	35796
1.7	42	35783
1.8	43	35772
1.9	44	35763
2.0	45	35755
2.1	46	35748
2.2	47	35743
2.3	48	35739
2.4	49	35736
2.5	50	35735
2.6	51	35734
2.7	52	35735
2.8	53	35736
2.9	54	35738
3.0	55	35741
3.1	56	35745
3.2	57	35749
3.3	58	35754
3.4	59	35760
3.5	60	35766
3.7	61	35773
3.8	62	35779
3.9	63	35786
4.0	64	35794
4.2	65	35801
4.3	66	35809
4.4	67	35816
4.5	68	35824
4.7	69	35831
4.8	70	35838
4.9	71	35845
5.1	72	35851
5.2	73	35858
5.4	74	35863
5.5	75	35868
5.7	76	35873
5.8	77	35877
6.0	78	35880
6.1	79	35883
6.3	80	35884
6.4	81	35885
6.6	82	35884
6.7	83	35883
6.9	84	35880
7.1	85	35876
7.2	86	35871
7.4	87	35865
7.6	88	35857
7.7	89	35848
7.9	90	35837
8.1	91	35825
8.3	92	35811
8.4	93	35795
8.6	94	35777
8.8	95	35758
9.0	96	35737
9.2	97	35714
9.4	98	35688
9.6	99	35661

Canola (Low Range)

* Pulses per litre

32425m

Notes:

Stated seed density is measured, and not customary commodity call weight. If your seed has a significantly different density, see "**Density Adjustment**" on page 39.

Table rates are for application from a single hopper at a time (whether or not both are loaded with the same material). For application of the same material from both hoppers simultaneously, do not use the target rate data. First divide the target rate by two, and use the setting for that half rate. Use that target rate for calibrating each meter.

Canola

Small Seeds Stars, High Range

Final Drive Range Gears	Stars Per Outlet	Seed Density	Remarks:
High Range 17T Driving; 54T Driven	2 Small Seeds (requires kit)	0.51 kg/litre	See table Notes.

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
0	0	-
3.0	20	40352
3.4	21	40222
3.8	22	40101
4.2	23	39989
4.7	24	39884
5.2	25	39788
5.6	26	39700
6.2	27	39618
6.7	28	39544
7.2	29	39477
7.8	30	39416
8.4	31	39362
8.9	32	39314
9.6	33	39271
10.2	34	39235
10.8	35	39203
11.5	36	39178
12.2	37	39157
12.9	38	39141
13.6	39	39130
14.3	40	39123
15.1	41	39121
15.9	42	39123
16.6	43	39129
17.4	44	39139
18.3	45	39153
19.1	46	39170
19.9	47	39190
20.8	48	39214
21.7	49	39241
22.6	50	39270
23.5	51	39303
24.4	52	39337
25.3	53	39375
26.2	54	39414
27.2	55	39456
28.2	56	39499
29.2	57	39544
30.2	58	39591
31.2	59	39639
32.2	60	39688
33.3	61	39739
34.3	62	39790
35.4	63	39842
36.5	64	39895
37.6	65	39948
38.7	66	40001
39.8	67	40054
40.9	68	40107
42.1	69	40159
43.2	70	40212
44.4	71	40263
45.6	72	40313
46.8	73	40363
48.0	74	40411
49.3	75	40457
50.5	76	40502
51.8	77	40545
53.1	78	40586
54.4	79	40625
55.7	80	40661
57.1	81	40694
58.4	82	40725
59.8	83	40752
61.2	84	40776
62.6	85	40797
64.0	86	40814
65.5	87	40827
67.0	88	40836
68.5	89	40841
70.0	90	40841
71.5	91	40837
73.1	92	40828
74.7	93	40814
76.3	94	40794
78.0	95	40769
79.7	96	40739
81.4	97	40703
83.1	98	40661
84.9	99	40613

Canola (High Range)

* Pulses per litre

32426m

Notes:

Stated seed density is measured, and not customary commodity call weight. If your seed has a significantly different density, see "**Density Adjustment**" on page 39.

Table rates are for application from a single hopper at a time (whether or not both are loaded with the same material). For application of the same material from both hoppers simultaneously, do not use the target rate data. First divide the target rate by two, and use the setting for that half rate. Use that target rate for calibrating each meter.

Millet *(Pennisetum glaucum, Setaria italica, Panicum miliaceum, Eleusine coracana)*

Small Seeds Stars, Low Range

Final Drive Range Gears	Stars Per Outlet	Seed Density	Remarks:
Low Range 17T Driving; 54T Driven	2 Small Seeds (requires kit)	0.47 kg/litre	See table Notes.

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
0	0	-
0.3	20	35127
0.4	21	35076
0.4	22	35032
0.4	23	34994
0.5	24	34962
0.5	25	34937
0.6	26	34917
0.6	27	34902
0.7	28	34892
0.7	29	34887
0.8	30	34887
0.9	31	34891
0.9	32	34899
1.0	33	34911
1.0	34	34927
1.1	35	34946
1.2	36	34968
1.2	37	34994
1.3	38	35022
1.4	39	35052
1.5	40	35085
1.5	41	35120
1.6	42	35157
1.7	43	35195
1.8	44	35235
1.8	45	35275
1.9	46	35317
2.0	47	35359
2.1	48	35402
2.2	49	35445
2.3	50	35488
2.4	51	35530
2.5	52	35572
2.5	53	35613
2.6	54	35653
2.7	55	35691
2.8	56	35728
2.9	57	35763
3.0	58	35796
3.1	59	35827
3.2	60	35855
3.4	61	35880
3.5	62	35902
3.6	63	35920
3.7	64	35935
3.8	65	35945
3.9	66	35951
4.0	67	35953
4.2	68	35950
4.3	69	35943
4.4	70	35929
4.5	71	35911
4.7	72	35886
4.8	73	35856
4.9	74	35819
5.1	75	35776
5.2	76	35727
5.4	77	35671
5.5	78	35607
5.7	79	35537
5.8	80	35459
6.0	81	35374
6.1	82	35281
6.3	83	35181
6.5	84	35072
6.7	85	34956
6.8	86	34832
7.0	87	34699
7.2	88	34559
7.4	89	34411
7.6	90	34254
7.8	91	34089
8.0	92	33917
8.2	93	33736
8.5	94	33547
8.7	95	33350
8.9	96	33146
9.2	97	32934
9.4	98	32714
9.7	99	32487

Millet (Low Range)

* Pulses per litre

32427m

Notes:

Stated seed density is measured, and not customary commodity call weight. If your seed has a significantly different density, see "**Density Adjustment**" on page 39.

Table rates are for application from a single hopper at a time (whether or not both are loaded with the same material). For application of the same material from both hoppers simultaneously, do not use the target rate data. First divide the target rate by two, and use the setting for that half rate. Use that target rate for calibrating each meter.

Millet

Small Seeds Stars, High Range

Final Drive Range Gears	Stars Per Outlet	Seed Density	Remarks:
High Range 17T Driving; 54T Driven	2 Small Seeds (requires kit)	0.47 kg/litre	See table Notes.

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
0	0	-
3.2	20	35233
3.6	21	35130
4.0	22	35044
4.5	23	34975
4.9	24	34921
5.4	25	34881
5.9	26	34855
6.4	27	34842
7.0	28	34841
7.5	29	34852
8.1	30	34875
8.7	31	34907
9.3	32	34950
9.9	33	35001
10.5	34	35061
11.1	35	35129
11.8	36	35205
12.4	37	35288
13.1	38	35376
13.8	39	35471
14.5	40	35570
15.2	41	35674
15.9	42	35782
16.7	43	35893
17.4	44	36006
18.2	45	36122
19.0	46	36238
19.7	47	36355
20.5	48	36472
21.4	49	36588
22.2	50	36702
23.0	51	36813
23.9	52	36921
24.7	53	37025
25.6	54	37124
26.5	55	37217
27.4	56	37303
28.4	57	37382
29.3	58	37453
30.3	59	37514
31.3	60	37565
32.3	61	37605
33.3	62	37633
34.4	63	37648
35.5	64	37650
36.6	65	37638
37.8	66	37611
39.0	67	37568
40.2	68	37509
41.5	69	37433
42.8	70	37339
44.2	71	37227
45.6	72	37097
47.0	73	36947
48.5	74	36779
50.1	75	36592
51.7	76	36385
53.4	77	36159
55.2	78	35913
57.0	79	35648
58.9	80	35365
60.9	81	35062
62.9	82	34742
65.1	83	34403
67.4	84	34048
69.7	85	33675
72.2	86	33288
74.7	87	32884
77.4	88	32467
80.2	89	32037
83.2	90	31594
86.2	91	31139
89.4	92	30674
92.8	93	30200
96.3	94	29717
100.0	95	29227
103.8	96	28730
107.9	97	28228
112.1	98	27721
116.5	99	27212

Millet (High Range)

* Pulses per litre

32428m

Notes:

Stated seed density is measured, and not customary commodity call weight. If your seed has a significantly different density, see “**Density Adjustment**” on page 39.

Table rates are for application from a single hopper at a time (whether or not both are loaded with the same material). For application of the same material from both hoppers simultaneously, do not use the target rate data. First divide the target rate by two, and use the setting for that half rate. Use that target rate for calibrating each meter.

Milo *(Sorghum)*

Small Seeds Stars, Low Range

Final Drive Range Gears	Stars Per Outlet	Seed Density	Remarks:
Low Range 17T Driving; 54T Driven	2 Small Seeds (requires kit)	0.63 kg/litre	See table Notes.

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
0	0	-
0.4	20	37024
0.4	21	36960
0.5	22	36901
0.6	23	36847
0.6	24	36796
0.7	25	36750
0.7	26	36707
0.8	27	36668
0.9	28	36632
0.9	29	36600
1.0	30	36572
1.1	31	36546
1.2	32	36523
1.2	33	36504
1.3	34	36487
1.4	35	36473
1.5	36	36461
1.6	37	36452
1.7	38	36445
1.8	39	36441
1.9	40	36438
2.0	41	36438
2.1	42	36439
2.2	43	36443
2.3	44	36447
2.4	45	36454
2.5	46	36462
2.6	47	36471
2.7	48	36481
2.8	49	36493
2.9	50	36505
3.1	51	36518
3.2	52	36533
3.3	53	36547
3.4	54	36563
3.6	55	36579
3.7	56	36595
3.8	57	36611
3.9	58	36628
4.1	59	36644
4.2	60	36660
4.4	61	36676
4.5	62	36692
4.7	63	36708
4.8	64	36722
4.9	65	36736
5.1	66	36749
5.3	67	36762
5.4	68	36773
5.6	69	36783
5.7	70	36792
5.9	71	36800
6.1	72	36805
6.2	73	36810
6.4	74	36812
6.6	75	36813
6.7	76	36812
6.9	77	36809
7.1	78	36803
7.3	79	36796
7.5	80	36785
7.6	81	36773
7.8	82	36758
8.0	83	36740
8.2	84	36719
8.4	85	36695
8.6	86	36668
8.8	87	36638
9.0	88	36605
9.3	89	36568
9.5	90	36528
9.7	91	36485
9.9	92	36438
10.2	93	36387
10.4	94	36332
10.6	95	36274
10.9	96	36211
11.1	97	36145
11.3	98	36075
11.6	99	36000

Milo (Low Range)

* Pulses per litre

32429m

Notes:

Stated seed density is measured, and not customary commodity call weight. If your seed has a significantly different density, see "**Density Adjustment**" on page 39.

Table rates are for application from a single hopper at a time (whether or not both are loaded with the same material). For application of the same material from both hoppers simultaneously, do not use the target rate data. First divide the target rate by two, and use the setting for that half rate. Use that target rate for calibrating each meter.

Milo

Small Seeds Stars, High Range

Final Drive Range Gears	Stars Per Outlet	Seed Density	Remarks:
High Range 17T Driving; 54T Driven	2 Small Seeds (requires kit)	0.63 kg/litre	See table Notes.

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
0	0	-
3.9	20	38242
4.4	21	37838
5.0	22	37486
5.6	23	37181
6.2	24	36921
6.8	25	36702
7.5	26	36522
8.2	27	36377
8.9	28	36265
9.6	29	36185
10.4	30	36135
11.1	31	36113
11.9	32	36117
12.7	33	36147
13.5	34	36200
14.3	35	36276
15.2	36	36373
16.0	37	36491
16.8	38	36629
17.7	39	36784
18.6	40	36957
19.4	41	37146
20.3	42	37351
21.2	43	37570
22.1	44	37802
23.0	45	38046
23.9	46	38301
24.8	47	38565
25.7	48	38838
26.6	49	39118
27.5	50	39404
28.4	51	39693
29.3	52	39985
30.2	53	40278
31.2	54	40570
32.1	55	40858
33.1	56	41141
34.0	57	41417
35.0	58	41684
36.0	59	41938
37.0	60	42179
38.1	61	42402
39.2	62	42606
40.3	63	42789
41.4	64	42947
42.6	65	43078
43.8	66	43179
45.0	67	43248
46.3	68	43284
47.7	69	43283
49.1	70	43243
50.6	71	43163
52.2	72	43042
53.9	73	42877
55.6	74	42668
57.5	75	42415
59.4	76	42117
61.5	77	41773
63.6	78	41386
66.0	79	40955
68.4	80	40481
71.0	81	39966
73.8	82	39413
76.7	83	38822
79.8	84	38197
83.2	85	37540
86.7	86	36854
90.4	87	36141
94.4	88	35406
98.6	89	34650
103.1	90	33878
107.9	91	33092
113.0	92	32296
118.3	93	31492
124.0	94	30684
130.1	95	29873
136.5	96	29064
143.3	97	28257
150.5	98	27456
158.1	99	26662

Milo (High Range)

* Pulses per litre

32430m

Notes:

Stated seed density is measured, and not customary commodity call weight. If your seed has a significantly different density, see “**Density Adjustment**” on page 39.

Table rates are for application from a single hopper at a time (whether or not both are loaded with the same material). For application of the same material from both hoppers simultaneously, do not use the target rate data. First divide the target rate by two, and use the setting for that half rate. Use that target rate for calibrating each meter.

Orchard Grass *(Dactylis glomerata)*

Small Seeds Stars, Low Range

Final Drive Range Gears	Stars Per Outlet	Seed Density	Remarks:
Low Range 17T Driving; 54T Driven	2 Small Seeds (requires kit)	0.17 kg/litre	See table Notes.

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
0	0	-
0.1	20	79811
0.1	21	79614
0.1	22	79430
0.1	23	79260
0.2	24	79102
0.2	25	78956
0.2	26	78822
0.2	27	78700
0.2	28	78590
0.2	29	78491
0.3	30	78403
0.3	31	78325
0.3	32	78258
0.3	33	78202
0.3	34	78155
0.3	35	78118
0.4	36	78091
0.4	37	78074
0.4	38	78065
0.4	39	78066
0.5	40	78076
0.5	41	78094
0.5	42	78121
0.5	43	78156
0.6	44	78200
0.6	45	78252
0.6	46	78312
0.6	47	78380
0.7	48	78456
0.7	49	78539
0.7	50	78629
0.8	51	78728
0.8	52	78833
0.8	53	78945
0.8	54	79065
0.9	55	79191
0.9	56	79325
0.9	57	79465
1.0	58	79611
1.0	59	79764
1.0	60	79924
1.1	61	80089
1.1	62	80261
1.1	63	80439
1.2	64	80623
1.2	65	80813
1.2	66	81008
1.3	67	81209
1.3	68	81415
1.3	69	81627
1.4	70	81845
1.4	71	82067
1.4	72	82295
1.5	73	82527
1.5	74	82764
1.5	75	83006
1.6	76	83253
1.6	77	83504
1.6	78	83759
1.7	79	84019
1.7	80	84283
1.8	81	84550
1.8	82	84822
1.8	83	85097
1.9	84	85375
1.9	85	85657
1.9	86	85942
2.0	87	86230
2.0	88	86521
2.1	89	86815
2.1	90	87111
2.1	91	87410
2.2	92	87710
2.2	93	88013
2.3	94	88317
2.3	95	88623
2.3	96	88930
2.4	97	89238
2.4	98	89547
2.5	99	89857

Orchard Grass (Low Range)

* Pulses per litre

32431m

Notes:

Stated seed density is measured, and not customary commodity call weight. If your seed has a significantly different density, see "**Density Adjustment**" on page 39.

Table rates are for application from a single hopper at a time (whether or not both are loaded with the same material). For application of the same material from both hoppers simultaneously, do not use the target rate data. First divide the target rate by two, and use the setting for that half rate. Use that target rate for calibrating each meter.

Orchard Grass

Small Seeds Stars, High Range

Final Drive Range Gears	Stars Per Outlet	Seed Density	Remarks:
High Range 17T Driving; 54T Driven	2 Small Seeds (requires kit)	0.17 kg/litre	See table Notes.

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
0	0	-
0.8	20	92996
0.9	21	93465
1.1	22	93971
1.2	23	94514
1.3	24	95092
1.4	25	95705
1.5	26	96354
1.6	27	97039
1.7	28	97758
1.9	29	98512
2.0	30	99301
2.1	31	100124
2.3	32	100982
2.4	33	101874
2.5	34	102799
2.6	35	103758
2.8	36	104750
2.9	37	105775
3.1	38	106833
3.2	39	107922
3.3	40	109043
3.5	41	110194
3.6	42	111375
3.7	43	112585
3.9	44	113824
4.0	45	115089
4.2	46	116380
4.3	47	117695
4.4	48	119033
4.6	49	120392
4.7	50	121771
4.8	51	123166
5.0	52	124575
5.1	53	125997
5.2	54	127427
5.4	55	128864
5.5	56	130303
5.7	57	131740
5.8	58	133173
5.9	59	134596
6.1	60	136006
6.2	61	137397
6.4	62	138763
6.5	63	140101
6.6	64	141404
6.8	65	142666
6.9	66	143882
7.1	67	145044
7.3	68	146146
7.4	69	147183
7.6	70	148146
7.8	71	149030
7.9	72	149828
8.1	73	150533
8.3	74	151139
8.5	75	151640
8.7	76	152030
8.9	77	152304
9.1	78	152456
9.4	79	152483
9.6	80	152380
9.9	81	152145
10.1	82	151775
10.4	83	151268
10.7	84	150623
11.0	85	149841
11.3	86	148923
11.7	87	147869
12.1	88	146683
12.4	89	145369
12.8	90	143929
13.3	91	142369
13.7	92	140694
14.2	93	138911
14.7	94	137027
15.2	95	135048
15.8	96	132982
16.4	97	130837
17.0	98	128620
17.6	99	126341

Orchard Grass (High Range)

* Pulses per litre

32432m

Notes:

Stated seed density is measured, and not customary commodity call weight. If your seed has a significantly different density, see “**Density Adjustment**” on page 39.

Table rates are for application from a single hopper at a time (whether or not both are loaded with the same material). For application of the same material from both hoppers simultaneously, do not use the target rate data. First divide the target rate by two, and use the setting for that half rate. Use that target rate for calibrating each meter.

Timothy Grass *(Phleum pratense)*

Small Seeds Stars, Low Range

Final Drive Range Gears	Stars Per Outlet	Seed Density	Remarks:
Low Range 17T Driving; 54T Driven	2 Small Seeds (requires kit)	0.41 kg/litre	See table Notes.

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
0	0	-
0.2	20	87374
0.3	21	87767
0.3	22	88132
0.3	23	88469
0.3	24	88777
0.4	25	89059
0.4	26	89313
0.4	27	89542
0.5	28	89744
0.5	29	89923
0.5	30	90077
0.6	31	90208
0.6	32	90316
0.7	33	90404
0.7	34	90471
0.8	35	90519
0.8	36	90549
0.8	37	90562
0.9	38	90559
0.9	39	90541
1.0	40	90509
1.0	41	90465
1.1	42	90410
1.2	43	90344
1.2	44	90269
1.3	45	90186

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
1.3	46	90096
1.4	47	90001
1.5	48	89901
1.5	49	89798
1.6	50	89693
1.6	51	89586
1.7	52	89480
1.8	53	89374
1.9	54	89271
1.9	55	89171
2.0	56	89075
2.1	57	88985
2.2	58	88901
2.2	59	88825
2.3	60	88757
2.4	61	88698
2.5	62	88650
2.5	63	88614
2.6	64	88590
2.7	65	88580
2.8	66	88585
2.9	67	88605
3.0	68	88642
3.1	69	88698
3.1	70	88773
3.2	71	88868
3.3	72	88984

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
3.4	73	89124
3.5	74	89287
3.6	75	89476
3.7	76	89692
3.7	77	89937
3.8	78	90211
3.9	79	90517
4.0	80	90856
4.1	81	91231
4.2	82	91643
4.2	83	92094
4.3	84	92587
4.4	85	93124
4.5	86	93708
4.5	87	94341
4.6	88	95027
4.7	89	95770
4.7	90	96572
4.8	91	97437
4.9	92	98371
4.9	93	99378
5.0	94	100464
5.0	95	101634
5.1	96	102894
5.1	97	104253
5.1	98	105718
5.1	99	107298

Timothy Grass (Low Range)

* Pulses per litre

32433m

Notes:

Stated seed density is measured, and not customary commodity call weight. If your seed has a significantly different density, see "**Density Adjustment**" on page 39.

Table rates are for application from a single hopper at a time (whether or not both are loaded with the same material). For application of the same material from both hoppers simultaneously, do not use the target rate data. First divide the target rate by two, and use the setting for that half rate. Use that target rate for calibrating each meter.

Timothy Grass

Small Seeds Stars, High Range

Final Drive Range Gears	Stars Per Outlet	Seed Density	Remarks:
High Range 17T Driving; 54T Driven	2 Small Seeds (requires kit)	0.41 kg/litre	See table Notes.

Sowing Rate kg/ha	Gearbox Setting	Cal. Const.*
0	0	-
2.2	20	87975
2.5	21	87649
2.8	22	87330
3.2	23	87017
3.5	24	86711
3.8	25	86412
4.2	26	86120
4.6	27	85835
5.0	28	85559
5.4	29	85290
5.8	30	85030
6.3	31	84778
6.7	32	84534
7.2	33	84300
7.7	34	84075
8.2	35	83859
8.7	36	83653
9.2	37	83457
9.8	38	83271
10.4	39	83096
10.9	40	82931
11.5	41	82776
12.1	42	82633
12.8	43	82501
13.4	44	82381
14.0	45	82272
14.7	46	82176
15.4	47	82091
16.1	48	82020
16.8	49	81961
17.5	50	81915
18.2	51	81883
18.9	52	81865
19.7	53	81861
20.4	54	81871
21.2	55	81897
22.0	56	81937
22.7	57	81993
23.5	58	82065
24.3	59	82154
25.1	60	82259
25.9	61	82382
26.7	62	82523
27.5	63	82682
28.4	64	82860
29.2	65	83058
30.0	66	83277
30.8	67	83516
31.7	68	83777
32.5	69	84060
33.3	70	84366
34.1	71	84697
34.9	72	85053
35.7	73	85434
36.6	74	85843
37.3	75	86280
38.1	76	86746
38.9	77	87243
39.7	78	87772
40.4	79	88334
41.2	80	88931
41.9	81	89565
42.6	82	90238
43.3	83	90951
44.0	84	91707
44.6	85	92508
45.2	86	93357
45.8	87	94256
46.4	88	95207
47.0	89	96216
47.5	90	97283
48.0	91	98415
48.4	92	99614
48.8	93	100886
49.2	94	102234
49.6	95	103666
49.9	96	105186
50.1	97	106802
50.3	98	108521
50.5	99	110350

Timothy Grass (High Range)

* Pulses per litre

32434m

Notes:

Stated seed density is measured, and not customary commodity call weight. If your seed has a significantly different density, see "**Density Adjustment**" on page 39.

Table rates are for application from a single hopper at a time (whether or not both are loaded with the same material). For application of the same material from both hoppers simultaneously, do not use the target rate data. First divide the target rate by two, and use the setting for that half rate. Use that target rate for calibrating each meter.

Great Plains Manufacturing, Inc.
Corporate Office: P.O. Box 5060
Salina, Kansas 67402-5060 USA