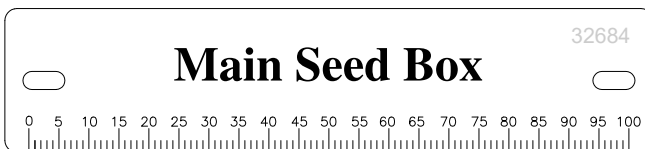
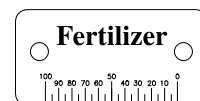
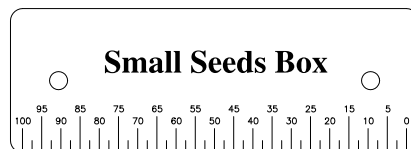
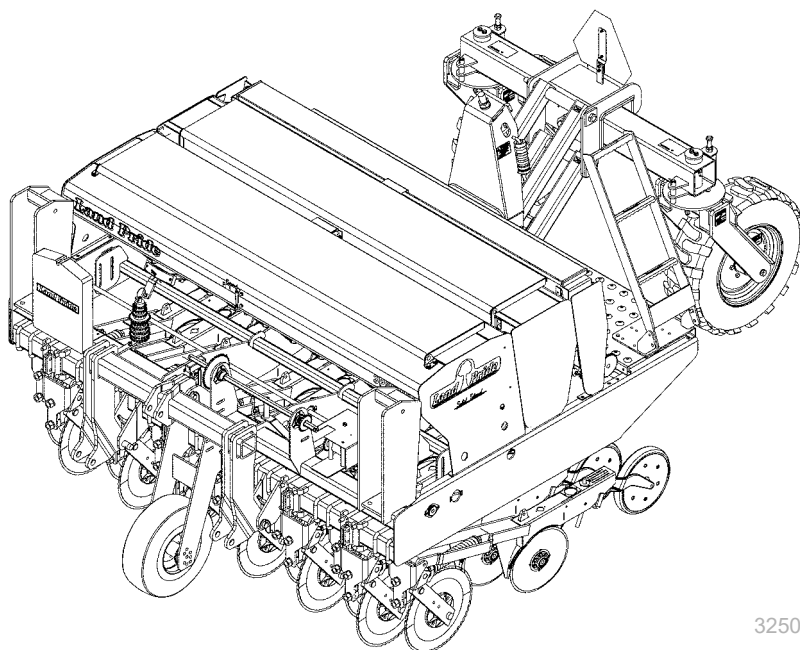


Compact Drill

3P806NT



Native Grass
SERIES II



32508

ORIGINAL INSTRUCTIONS

313-525B
Seed Rate Manual



Rates indicated in the charts are approximate. To assure the most accurate seeding, it is recommended that the drill be calibrated for the desired seed at the time of planting.

Illustrations may show optional equipment not supplied with standard unit.

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Table of Contents

Introduction	1	Wheat (<i>Triticum</i>)	17
Models Covered	1	Wheatgrass (<i>Pascopyrum smithii</i> , <i>Agropyron elongatum</i>).....	17
Document Family	1	Native Grass Rate	18
Material Rates Overview	1	Setting Native Grass Seed Rate.....	18
Calibration Overview	2	Native Grass Rate Calibration	18
Calibration Crank Storage.....	2	Native Grass Meter Shaft Rates.....	21
Using Calibration Crank	2	Standard Shaft Rates	21
Main and Dual Box Seed Rate	4	Shaft Rates with Seed Rate Reduction	21
Setting Drive Type	4	Seed Lubricant.....	21
Main and Dual Box Seed Rate Handle	5	Brome Grass Seeding	22
Position Seed Cup Doors.....	5	Brome Rate Charts	24
Main/Dual Seed Row Shutoff.....	5	Small Seeds Rate	25
Reading a Seed Rate Chart.....	6	Small Seeds Rate Calibration.....	25
Main/Dual Box Seed Rate Calibration	7	Small Seeds Row Shut-Off	27
Rate Charts, Main Seed Box	9	Small Seeds Rate Charts	28
Alfalfa (<i>Medicago sativa</i>).....	9	Alfalfa, Red Alsike, Crimson Clover.....	28
Bahia Grass (<i>Paspalum notatum</i>).....	9	Kentucky Bluegrass,	
Barley (<i>Hordeum vulgare</i>).....	9	Fescue, Annual Rye Grass	28
Buckwheat (<i>Fagopyrum esculentum</i>)	10	Bermuda, Red Top, Lespedeza Unhulled,	
Buffalograss (<i>Buchloe dactyloides</i>).....	10	Sercia, Sand, Weeping Love Grass	28
Bermuda Grass (<i>Cynodon dactylon</i>).....	10	Red & Sweet Clover, Lespedeza Hulled	28
K-31 Fescue (<i>Festuca</i>)	11	Orchard Grass	28
Flax (<i>Linum usitatissimum</i>) or Sudan		Millet, Reed Canary	29
(<i>Sorghum bicolor</i> subsp. <i>drummondii</i>)	11	Ladino Clover, Canary Grass,	
Eastern Gamma Grass - Pete		Timothy, Canola.....	29
(<i>Tripsacum dactyloides</i>).....	11	Birdsfoot, Trefoil, Sudan	29
Kentucky Blue Grass (<i>Poa pratensis</i>)	12	Fertilizer Rate	30
Millet (<i>Pennisetum glaucum</i> , <i>Setaria italica</i> ,		Setting Fertilizer Rate	30
<i>Panicum miliaceum</i> , <i>Eleusine coracana</i>).....	12	Fertilizer Rate Chart	30
Milo (<i>Sorghum</i>)	12	Fertilizer Rates in Pounds per Acre	30
Oats (<i>Avena sativa</i>)	13	Metric Fertilizer Rate Chart.....	30
Orchard Grass Potomac (<i>Dactylis glomerata</i>)	13	Adjusting for Density.....	31
Peas (<i>Pisum sativum</i>)	13	Density Conversion Charts	31
Pinto Beans (<i>Phaseolus vulgaris</i>)	14	U.S. Customary Units	31
Rape (<i>Brassica napus</i>)	14	Metric	31
Rice, Long Grain (<i>Oryza sativa indica</i>)	14	Fertilizer Rate Calibration	32
Rice, Short Grain (<i>Oryza sativa japonica</i> ,		Appendix	34
<i>Oryza sativa sinica</i>).....	15	Metric Rate Charts, Main Seed Box	34
Rye (<i>Secale cereale</i>)	15	Metric Rate Charts, Small Seeds Box	43
Perennial Rye Grass - Palmer		Metric Native Grass Rates.....	45
(<i>Lolium perenne</i> , <i>Lolium multiflorum</i>).....	15	Metric Native Grass Shaft Rates	46
Soybeans (<i>Glycine max</i>)	16	Brome Seed Rates, Metric	47
Sunflower (<i>Helianthus annuus</i>)	16		
Tiffany Teff, Coated (<i>Eragrostis tef</i>).....	16		

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Introduction

This manual is your guide to drill adjustments for achieving specific seed populations.

Although some setup, operation and adjustment material herein is repeated from the drill Operator's Manual, you need to be thoroughly familiar with drill operations and adjustments before applying this Seed Rate Manual and its table data.

Models Covered

This rate manual applies to drill models:

3P806NT 15-row 7.5-inch (19.1 cm)

Document Family

313-520M Operator's Manual
 313-520P Parts Manual
 313-525B Seed Rate Manual (this document)

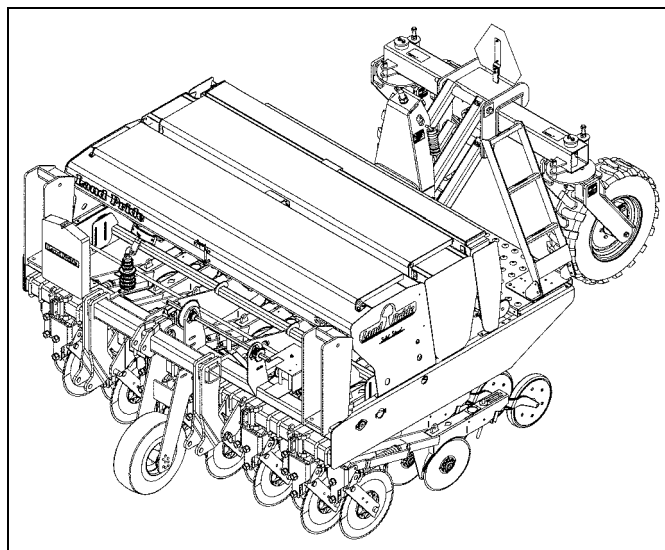


Figure 1
3P806NT No-Till Drill

32508

Material Rates Overview

Details of seed and fertilizer rate setting are found in the **Adjustments** section of the Operator's Manual, and rely on data from this Seed Rate Manual.

Rate setting controls are different for each box. Some boxes have more than one control.

All chart rates, for all boxes, are approximate. Land Pride strongly recommends calibration of each box to the material to be applied.

	Main Box Dual Seed (page 4)	Small Seeds (page 25)	Native Grass (page 18)	Fertilizer (page 30)
Rate Range		Rate Handle	Seed Rate Reduction	Rate Knob
Coarse Rate	Drive Type		Drive Type	
Fine Rate	Rate Handle		Driver/Driven	
Cup Adjustment	Door Handle			

Calibration Overview

Detailed calibration steps vary with each box, see:
“Main/Dual Box Seed Rate Calibration” on page 7,
“Fertilizer Rate Calibration” on page 32,
“Native Grass Rate Calibration” on page 18, and
“Small Seeds Rate Calibration” on page 25,

Some general information applies to all boxes, and is not repeated in those pages referenced above.

Calibrate with Drill Raised

Perform the calibration with the drill hitched and raised. Install lift-assist cylinder lock. Calibration with the drill lowered is not recommended, as the drive tires in ground contact prevent drive operation.

Calibrate for 1/10th Acre or Hectare (S/N 1172214-)

The number of revolutions per area is:

revolutions for	Crank	Tire
Full Acre	656	1170
1/10 th Acre	65.6	117
Full Hectare	1622	2890
1/10 th Hectare	162	289

32341

Note: Crank counts below 10 are not recommended. Sample sizes may be too low, and fractional crank turns introduce more error.

Calibrate for 1/10th Acre or Hectare (S/N 1172215+)

The number of revolutions per area is:

Revolutions for:	Crank	Tire
Full Acre	358	1170
1/10 th Acre	35.8 (36)	117
Full Hectare	883	2890
1/10 th Hectare	88.3 (88)	289

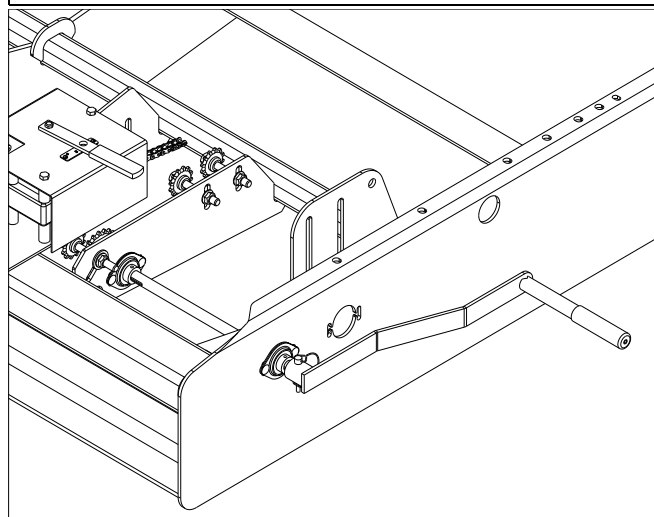
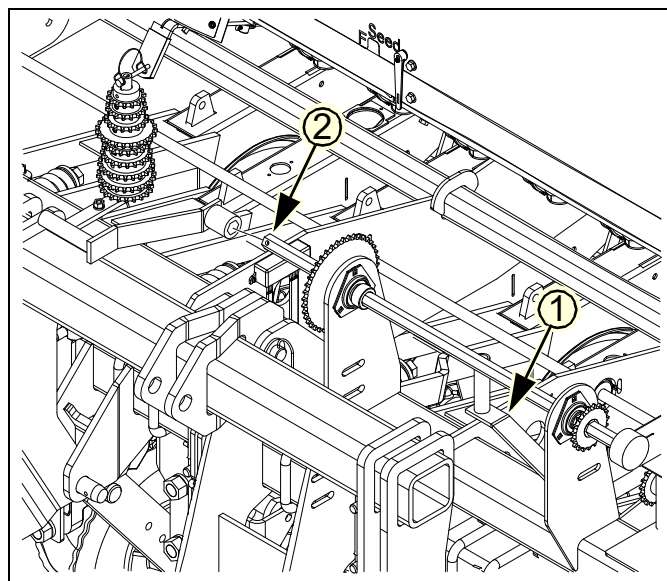


Figure 2
Calibration Crank

Calibration Crank (S/N 1172214-), above
 Calibration Crank (S/N 1172215+), below

28410
68791

Calibration Crank Storage

Refer to Figure 2

The calibration crank ① is found at the top front frame, left of center, pinned to a stob on a 3-point weldment.

Note: The retaining pin at the stob can also secure the crank to the jackshaft.

Using Calibration Crank

Place the hex socket of the crank on the right end of the main jackshaft ②.

Operate the crank clockwise.

A wide range of cranking speeds produce accurate calibrations. For reference, at 6 mph (10 kph) field speed, jackshaft rpm is 65 (about 1 revolution per second).

Check Affected Boxes

Empty any boxes not being calibrated or remove a drive chain to prevent undesired meter operation. Alternatively, set rate handles to zero.

Main and Dual Box Seed Rate

Accurately obtaining the desired seed population requires four steps:

1. Setting Drive Type gearbox (from chart)
2. Setting initial Seed Rate Handle (from chart)
3. Positioning Seed Cup Door (by seed type)
4. Calibration: checking predicted seeding rate

Seed rate charts begin on page 9. The charts list proper Drive Type and seed rate handle settings for various seeds and seeding rates.

The seed rate charts are based on cleaned, untreated seed of average size and test weight. The charts are based on factory-supplied 5.70-8 8-Ply tires inflated to factory specification. Many factors affect seeding rates including foreign material, seed treatment, seed size, seed weight, field conditions, tire pressure and test weight.

Use the charts only as a starting point. Minor adjustments are commonly required. Set and check the seeding rate using the procedures beginning on page 7, then readjust the rate as necessary.

8 | 3P806NT

Rate Charts, Main Seed Box

Charts in U.S. customary units.
Metric charts begin on page 33.

Alfalfa (*Medicago sativa*)

Rows	Drive Type	Seed Rate Handle Setting	Seed Rate in Pounds Per Acre (based on 60 pounds/bushel)
7.5 in	0	4.6	6.7
7.5 in	0	5.6	8.1
7.5 in	0	6.6	9.5
7.5 in	0	7.6	10.9
7.5 in	0	8.6	12.3
7.5 in	0	9.6	13.7
7.5 in	0	10.6	15.1
7.5 in	0	11.6	16.5
7.5 in	0	12.6	17.9
7.5 in	0	13.6	19.3
7.5 in	0	14.6	20.7
7.5 in	0	15.6	22.1
7.5 in	0	16.6	23.5
7.5 in	0	17.6	24.9
7.5 in	0	18.6	26.3
7.5 in	0	19.6	27.7
7.5 in	0	20.6	29.1
7.5 in	0	21.6	30.5
7.5 in	0	22.6	31.9
7.5 in	0	23.6	33.3
7.5 in	0	24.6	34.7
7.5 in	0	25.6	36.1
7.5 in	0	26.6	37.5
7.5 in	0	27.6	38.9
7.5 in	0	28.6	40.3
7.5 in	0	29.6	41.7
7.5 in	0	30.6	43.1
7.5 in	0	31.6	44.5
7.5 in	0	32.6	45.9
7.5 in	0	33.6	47.3
7.5 in	0	34.6	48.7
7.5 in	0	35.6	50.1
7.5 in	0	36.6	51.5
7.5 in	0	37.6	52.9
7.5 in	0	38.6	54.3
7.5 in	0	39.6	55.7
7.5 in	0	40.6	57.1
7.5 in	0	41.6	58.5
7.5 in	0	42.6	59.9
7.5 in	0	43.6	61.3
7.5 in	0	44.6	62.7
7.5 in	0	45.6	64.1
7.5 in	0	46.6	65.5
7.5 in	0	47.6	66.9
7.5 in	0	48.6	68.3
7.5 in	0	49.6	69.7
7.5 in	0	50.6	71.1
7.5 in	0	51.6	72.5
7.5 in	0	52.6	73.9
7.5 in	0	53.6	75.3
7.5 in	0	54.6	76.7
7.5 in	0	55.6	78.1
7.5 in	0	56.6	79.5
7.5 in	0	57.6	80.9
7.5 in	0	58.6	82.3
7.5 in	0	59.6	83.7
7.5 in	0	60.6	85.1
7.5 in	0	61.6	86.5
7.5 in	0	62.6	87.9
7.5 in	0	63.6	89.3
7.5 in	0	64.6	90.7
7.5 in	0	65.6	92.1
7.5 in	0	66.6	93.5
7.5 in	0	67.6	94.9
7.5 in	0	68.6	96.3
7.5 in	0	69.6	97.7
7.5 in	0	70.6	99.1
7.5 in	0	71.6	100.5
7.5 in	0	72.6	101.9
7.5 in	0	73.6	103.3
7.5 in	0	74.6	104.7
7.5 in	0	75.6	106.1
7.5 in	0	76.6	107.5
7.5 in	0	77.6	108.9
7.5 in	0	78.6	110.3
7.5 in	0	79.6	111.7
7.5 in	0	80.6	113.1
7.5 in	0	81.6	114.5
7.5 in	0	82.6	115.9
7.5 in	0	83.6	117.3
7.5 in	0	84.6	118.7
7.5 in	0	85.6	120.1
7.5 in	0	86.6	121.5
7.5 in	0	87.6	122.9
7.5 in	0	88.6	124.3
7.5 in	0	89.6	125.7
7.5 in	0	90.6	127.1
7.5 in	0	91.6	128.5
7.5 in	0	92.6	129.9
7.5 in	0	93.6	131.3
7.5 in	0	94.6	132.7
7.5 in	0	95.6	134.1
7.5 in	0	96.6	135.5
7.5 in	0	97.6	136.9
7.5 in	0	98.6	138.3
7.5 in	0	99.6	139.7
7.5 in	0	100.6	141.1
7.5 in	0	101.6	142.5
7.5 in	0	102.6	143.9
7.5 in	0	103.6	145.3
7.5 in	0	104.6	146.7
7.5 in	0	105.6	148.1
7.5 in	0	106.6	149.5
7.5 in	0	107.6	150.9
7.5 in	0	108.6	152.3
7.5 in	0	109.6	153.7
7.5 in	0	110.6	155.1
7.5 in	0	111.6	156.5
7.5 in	0	112.6	157.9
7.5 in	0	113.6	159.3
7.5 in	0	114.6	160.7
7.5 in	0	115.6	162.1
7.5 in	0	116.6	163.5
7.5 in	0	117.6	164.9
7.5 in	0	118.6	166.3
7.5 in	0	119.6	167.7
7.5 in	0	120.6	169.1
7.5 in	0	121.6	170.5
7.5 in	0	122.6	171.9
7.5 in	0	123.6	173.3
7.5 in	0	124.6	174.7
7.5 in	0	125.6	176.1
7.5 in	0	126.6	177.5
7.5 in	0	127.6	178.9
7.5 in	0	128.6	180.3
7.5 in	0	129.6	181.7
7.5 in	0	130.6	183.1
7.5 in	0	131.6	184.5
7.5 in	0	132.6	185.9
7.5 in	0	133.6	187.3
7.5 in	0	134.6	188.7
7.5 in	0	135.6	190.1
7.5 in	0	136.6	191.5
7.5 in	0	137.6	192.9
7.5 in	0	138.6	194.3
7.5 in	0	139.6	195.7
7.5 in	0	140.6	197.1
7.5 in	0	141.6	198.5
7.5 in	0	142.6	199.9
7.5 in	0	143.6	201.3
7.5 in	0	144.6	202.7
7.5 in	0	145.6	204.1
7.5 in	0	146.6	205.5
7.5 in	0	147.6	206.9
7.5 in	0	148.6	208.3
7.5 in	0	149.6	209.7
7.5 in	0	150.6	211.1
7.5 in	0	151.6	212.5
7.5 in	0	152.6	213.9
7.5 in	0	153.6	215.3
7.5 in	0	154.6	216.7
7.5 in	0	155.6	218.1
7.5 in	0	156.6	219.5
7.5 in	0	157.6	220.9
7.5 in	0	158.6	222.3
7.5 in	0	159.6	223.7
7.5 in	0	160.6	225.1
7.5 in	0	161.6	226.5
7.5 in	0	162.6	227.9
7.5 in	0	163.6	229.3
7.5 in	0	164.6	230.7
7.5 in	0	165.6	232.1
7.5 in	0	166.6	233.5
7.5 in	0	167.6	234.9
7.5 in	0	168.6	236.3
7.5 in	0	169.6	237.7
7.5 in	0	170.6	239.1
7.5 in	0	171.6	240.5
7.5 in	0	172.6	241.9
7.5 in	0	173.6	243.3
7.5 in	0	174.6	244.7
7.5 in	0	175.6	246.1
7.5 in	0	176.6	247.5
7.5 in	0	177.6	248.9
7.5 in	0	178.6	250.3
7.5 in	0	179.6	251.7
7.5 in	0	180.6	253.1
7.5 in	0	181.6	254.5
7.5 in	0	182.6	255.9
7.5 in	0	183.6	257.3
7.5 in	0	184.6	258.7
7.5 in	0	185.6	260.1
7.5 in	0	186.6	261.5
7.5 in	0	187.6	262.9
7.5 in	0	188.6	264.3
7.5 in	0	189.6	265.7
7.5 in	0	190.6	267.1
7.5 in	0	191.6	268.5
7.5 in	0	192.6	269.9
7.5 in	0	193.6	271.3
7.5 in	0	194.6	272.7
7.5 in	0	195.6	274.1
7.5 in	0	196.6	275.5
7.5 in	0	197.6	276.9
7.5 in	0	198.6	278.3
7.5 in	0	199.6	279.7
7.5 in	0	200.6	281.1
7.5 in	0	201.6	282.5
7.5 in	0	202.6	283.9
7.5 in	0	203.6	285.3
7.5 in	0	204.6	286.7
7.5 in	0	205.6	288.1
7.5 in	0	206.6	289.5
7.5 in	0	207.6	290.9
7.5 in	0	208.6	292.3
7.5 in	0	209.6	293.7
7.5 in	0	210.6	295.1
7.5 in	0	211.6	296.5
7.5 in	0	212.6	297.9
7.5 in	0	213.6	299.3
7.5 in	0	214.6	300.7
7.5 in	0	215.6	302.1
7.5 in	0	216.6	303.5
7.5 in	0	217.6	304.9
7.5 in	0	218.6	306.3
7.5 in	0	219.6	307.7
7.5 in	0	220.6	309.1
7.5 in	0	221.6	310.5
7.5 in	0	222.6	311.9
7.5 in	0	223.6	313.3
7.5 in	0	224.6	314.7
7.5 in	0	225.6	316.1
7.5 in	0	226.6	317.5
7.5 in	0	227.6	318.9
7.5 in	0	228.6	320.3
7.5 in	0	229.6	321.7
7.5 in	0	230.6	323.1
7.5 in	0	231.6	324.5
7.5 in	0	232.6	325.9
7.5 in	0	233.6	327.3
7.5 in	0	234.6	328.7
7.5 in	0	235.6	330.1
7.5 in	0	236.6	331.5
7.5 in	0	237.6	332.9
7.5 in	0	238.6	334.3
7.5 in	0	239.6	335.7
7.5 in	0	240.6	337.1
7.5 in	0	241.6	338.5
7.5 in	0	242.6	339.9
7.5 in	0	243.6	341.3
7.5 in	0	244.6	342.7
7.5 in	0	245.6	344.1
7.5 in	0	246.6	345.5
7.5 in	0	247.6	346.9
7.5 in	0	248.6	348.3
7.5 in	0	249.6	349.7
7.5 in	0	250.6	351.1
7.5 in	0	251.6	352.5
7.5 in	0	252.6	353.9
7.5 in	0	253.6	355.3
7.5 in	0	254.6	356.7
7.5 in	0	255.6	358.1
7.5 in	0	256.6	359.5
7.5 in	0	257.6	360.9
7.5 in	0	258.6	362.3
7.5 in	0	259.6	363.7
7.5 in	0	260.6	365.1
7.5 in	0	261.6	366.5
7.5 in	0	262.6	367.9
7.5 in	0	263.6	369.3
7.5 in	0	264.6	370.7
7.5 in	0	265.6	372.1
7.5 in	0	266.6	373.5
7.5 in	0	267.6	374.9
7.5 in	0	268.6	376.3
7.5 in	0	269.6	377.7
7.5 in	0	270.6	379.1
7.5 in	0	271.6	380.5
7.5 in	0	272.6	381.9
7.5 in	0	273.6	383.3
7.5 in	0	274.6	384.7
7.5 in	0	275.6	386.1
7.5 in	0	276.6	387.5
7.5 in	0	277.6	388.9
7.5 in	0	278.6	390.3
7.5 in	0	279.6	391.7
7.5 in	0	280.6	393.1
7.5 in	0	281.6	394.5
7.5 in	0	282.6	395.9
7.5 in	0	283.6	397.3
7.5 in	0	284.6	398.7
7.5 in	0	285.6	400.1
7.5 in	0	286.6	401.5
7.5 in	0	287.6	402.9
7.5 in	0	288.6	404.3
7.5 in	0	289.6	405.7
7.5 in	0	290.6	407.1
7.5 in	0	291.6	408.5
7.5 in	0	292.6	409.9
7.5 in	0	293.6	411.3
7.5 in	0	294.6	412.7
7.5 in	0	295.6	414.1
7.5 in	0	296.6	415.5
7.5 in	0	297.6	416.9
7.5 in	0	298.6	418.3
7.5 in	0	299.6	419.7
7.5 in	0	300.6	421.1

Bahia Grass (*Paspalum notatum*)

Rows	
------	--

Main and Dual Box Seed Rate Handle

Refer to Figure 4

There is a single rate handle for the entire box. There are separate handles for the standard main seed box and the optional dual seed box.

The seed rate handle controls the percent engagement of the seed sprocket in each seed cup. The initial setting of the handle is given by the Seed Rate Chart.

Note: You can temporarily stop main seed flow (such as for adjusting level/depth) with handle set to zero.

To set the handle:

1. Loosen wing nut ⑥ under handle.
2. Move indicator ⑦ from current setting to about 10 higher than the new desired value from calibration or the Seed Rate Chart, then back to the desired value.
3. Tighten wing nut.

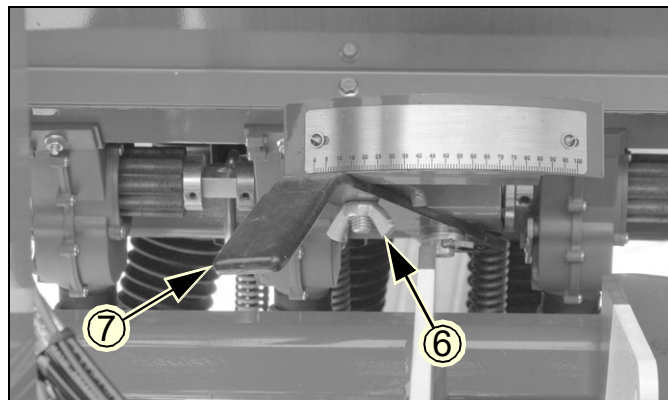


Figure 4
Main/Dual Box Seed Rate Handle

32772

Position Seed Cup Doors

Refer to Figure 5, which depicts the seed cup door handle in position ③.

At each main seed box seed tube, adjust the seed cup door handle ④ for the seed size.

The handle has three normal operating position detents:

- ① (top detent) is for the smallest seeds. Use it for wheat and similar small seeds.
- ② (middle detent) is for larger seeds. Use it for soybeans and similar larger seeds.
- ③ (bottom detent) is for oversize or fragile seeds. If you experience excessive cracking with setting ②, use setting ③.

Note: Handle position ⑤ is used for clean-out, not planting. If set to this position with seed loaded, it may be difficult to reset it to a normal operating position.

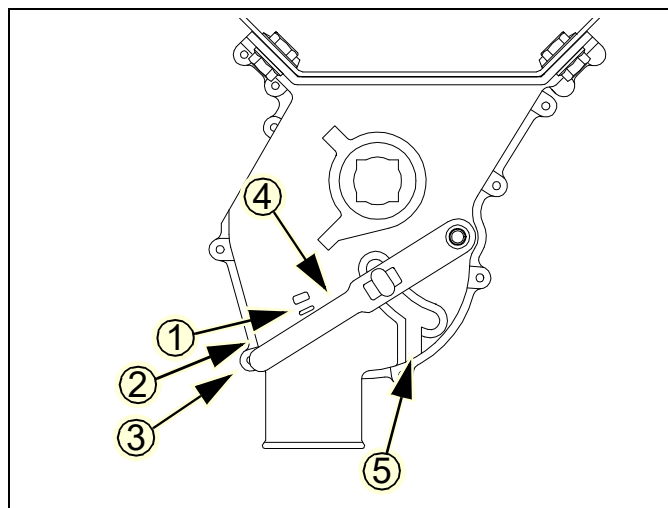


Figure 5
Seed Cup Door Handle

26211

Main/Dual Seed Row Shutoff

If alternate row spacings are desired, the unused rows can be shut off with optional plugs.

1. Clean-out seed. The seed box must be empty prior to inserting plugs. See “Main Box Clean-Out” in Operator’s manual.

Refer to Figure 6

2. Insert one plug at each row to shut off. Verify the seed hose path before inserting the plug, as some hoses do not make a strictly vertical drop to their row units.
3. Review seed rate settings prior to planting. Perform calibration calculations with the actual active row count.

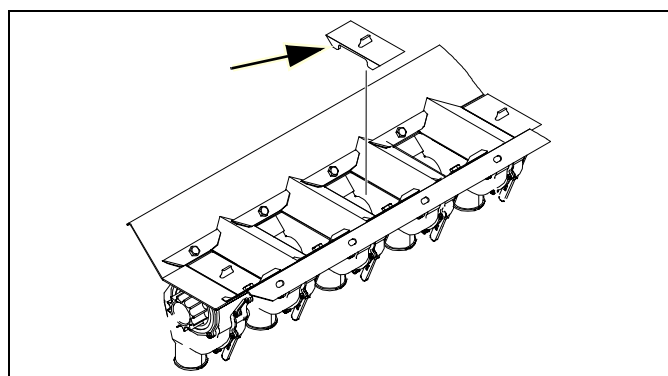


Figure 6
Seed Cup Plug

26279

1. Find your seed. Charts are in alphabetical order by common North American seed name. Scientific names are provided. Charts covering more than one seed may be out of order.
For Sudan, see Flax.

There are multiple chart sections for some seeds, and the rates may overlap. Use the chart where your desired rate is closest to 50 on the Seed Rate Handle scale.

If your seed is not listed, find one with similar size, shape and density. Density of the test seed used to develop the chart appears under the right end of the handle scale values.

- In the example, this is
Drive Type 2

- In the example the rate closest to 60 is:
64

- In the example, start with a handle setting of: *50 (or interpolate to 48)*, and calibrate. When a target rate falls halfway between handle settings, you can adjust the handle slightly to compensate, as in the example, but calibration is apt to result in further adjustment anyway.

Barley (*Hordeum vulgare*) 32342

Seed Rate Handle Setting

5	10	15	20	25	30	35	40	45	50	55
---	----	----	----	----	----	----	----	----	----	----

Type: 1 32342 Seed Rate in Pounds Per Acre

7	6.3	8.4	11	14	17	20	24	27	31	35
---	-----	-----	----	----	----	----	----	----	----	----

Type: 2 Seed Rate in Pounds Per Acre

0	13	17	22	28	35	42	49	56	64	72
---	----	----	----	----	----	----	----	----	----	----

32342

30	65	70	75	80	85	90	95	100
----	----	----	----	----	----	----	----	-----

Per Acre (based on 51 pounds/bushel) 32342

29	42	45	49	51	54	56	57	58
----	----	----	----	----	----	----	----	----

32342

0	4.7	6.3	8.4	11	14	17	20	24	27	31
---	-----	-----	-----	----	----	----	----	----	----	----

Drive Type: 2 32342 Seed Rate in Pounds Per Acre

0	10	13	17	22	28	35	42	49	56	64
---	----	----	----	----	----	----	----	----	----	----

Drive Type: 3 Seed Rate in Pounds Per Acre

4	11	14	17	20	24	27	31	35	39	42
---	----	----	----	----	----	----	----	----	----	----

32342 Seed Rate in Pounds Per Acre

17	22	28	35	42	49	56	64	72	79	86
----	----	----	----	----	----	----	----	----	----	----

Seed Rate in Pounds Per Acre

Seed Rate Handle Setting

15	20	25	30	35	40	45	50	55	60	65
----	----	----	----	----	----	----	----	----	----	----

Seed Rate in Pounds Per Acre

8.4	11	14	17	20	24	27	31	35	39	42
-----	----	----	----	----	----	----	----	----	----	----

32342 Seed Rate in Pounds Per Acre

17	22	28	35	42	49	56	64	72	79	86
----	----	----	----	----	----	----	----	----	----	----

Seed Rate in Pounds Per Acre

Main/Dual Box Seed Rate Calibration

Differences will exist between the tested seed and field conditions used to generate the Seed Rate Charts, and your seed and conditions. To accurately achieve your target population, Land Pride recommends calibrating.

Due to the large number of crank revolutions per acre (656 S/N 1172214-, 358 S/N 1172215+) and per hectare (1622 S/N 1172214-, 883 S/N 1172215+), a practical calibration is a simulation of $\frac{1}{10}$ th acre or $\frac{1}{10}$ th hectare.

1. Estimate the sample sizes.

$$\text{RateSample} = \frac{\text{TargetRate}}{10}$$

$$\text{SamplePerRow} = \frac{\text{RateSample}}{\text{RowCount}}$$

$$\text{ExpectedSample} = \text{SamplePerRow} \times \text{SampledRows}$$

2. To perform this calibration, you need a scale that is accurate at the aggregate sample size, and three (3) light containers, each capable of holding the expected *SamplePerRow*. Record the empty container weights.
3. Raise the drill so the gauge wheel is out of ground contact.
4. Remove the calibration crank from its storage stob. Store the retaining pin on the stob.
5. Place the hex socket of the crank on the end of the gearbox input jackshaft (see page 2).
6. Pull the seed hoses off the top of three opener seed tubes, at the top of the openers. Place the hoses into each sample container.
7. If not already done, set the Drive Type, Seed Rate Handle and Seed Cup Doors across the drill. If any optional seed boxes are loaded, disconnect their drive or set their rate to zero (unless you are simultaneously calibrating multiple boxes).
8. Load seed above the rows to be sampled. Load well more than the expected sample size.
9. Rotate the crank several turns to ensure that the drives and seed cups are engaged, working properly, free from foreign material, and that seed is flowing steadily from the meters. Stop.
10. Note the current reading of the acremeter, unless you do not plan to rely on it for the calibration.
11. Empty the sample containers back into the seed box, and place them back under the three hoses to gather metered seed.
12. Turn crank at a steady rate for the number of turns specified on page 2, or until one tenth acre or hectare is tallied on acremeter. While turning, check that cups have ample seed coming into them.

Example: You want to apply barley at a *TargetRate* of 60 pounds per acre. *RateSample* is:

$$6.0 = \frac{60}{10}$$

Example: the drill has 13 rows. *SamplePerRow* is:

$$0.46 = \frac{6.0}{13}$$

Example: 3 rows are to be used in the sampling. *ExpectedSample* is:

$$1.38 = 0.46 \times 3$$

The expected sample net weight is 1.2 lb.

Example: 3 containers, each weighing 0.5lb:

$$\text{ContainerWeight} = 1.5 \text{ lb}$$

CAUTION

Crushing Hazard:

Install lift cylinder lock on a raised drill.

Note: You can also rotate the tire, the gauge wheel jackshaft or the gear box jackshaft. If using a non-standard rotating/cranking point, rely on the acremeter to determine the area simulated.

Example: you desire to plant barley at:

60 pounds per acre

which is between

45 and 50

on the Drive Type 2 chart.

Use an initial Seed Rate Handle (*InitialHandle*) scale setting of:

48

3P806NT crank rotations for $\frac{1}{10}$ th acre:
65 S/N 1172214-, 35 S/N 1172215+

13. Weigh metered seed. Subtract initial weight of container(s).

$$\text{NetWeight} = \text{GrossWeight} - \text{ContainerWeight}$$

Example: the containers weighed a total of 2.98 pounds after test. *NetWeight* is:

$$1.48 \text{ lbs net}$$

$$1.48 = 2.98 - 1.5$$

14. Divide the net seed weight by three. Multiply by number of openers on your drill, and then by ten, to determine the total of pounds per acre seeded.

$$\text{MeasuredRate} = \frac{\text{NetWeight}}{\text{SampledRows}} \times \text{OpenerCount} \times 10$$

Example: *MeasuredRate* is:

$$64 \text{ lbs/ac}$$

$$64.3 = \frac{1.48}{3} \times 13 \times 10$$

15. The Seed Rate Handle scale is a percentage of meter opening, and its effect is linear near scale center. Calculate a new scale setting based on the test.

Set the Seed Rate Handle to the new scale setting.

16. You may want to repeat calibration procedure at the new setting if your results varied greatly from the Seed Rate Chart, or if you must operate near the ends of the Seed Rate handle scale (0-20 or 90-100).

$$\text{NewScale} = \frac{\text{TargetRate}}{\text{MeasuredRate}} \times \text{PreviousScale}$$

For example:

the target rate was 60 lbs/ac, and the initial scale 48: the *NewScale* setting is:

$$45$$

$$44.8 = \frac{60}{64} \times 48$$

17. With calibration complete, store calibration crank, reinstall any removed chains or sprockets and reconnect seed hoses.
18. Check that your tire(s) is(are) properly inflated. See “**Tire Inflation Chart**” in Operator’s manual.

When drilling, check seeding rate by noting acres drilled, amount of seed added to drill and seed level in drill box. If you are seeding more or less than desired, adjust rate slightly to compensate for field conditions.

Rate Charts, Main Seed Box

Charts in U.S. customary units.
Metric charts begin on page 34.

Alfalfa (*Medicago sativa*)

	Seed Rate Handle Setting																					
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	
Rows	Drive Type: 1							Seed Rate in Pounds Per Acre (based on 60 pounds/bushel)														
7.5 in	0	4.6	6.7	9.1	12	15	18	21	25	28	32	36	39	43	47	50	54	57	61	64	66	
	Drive Type: 2							Seed Rate in Pounds Per Acre														
7.5 in	0	9.5	14	19	24	30	37	44	51	58	66	73	81	89	96	104	111	118	125	131	136	
	Drive Type: 3							Seed Rate in Pounds Per Acre														
7.5 in	0	15	22	29	37	46	55	65	75	86	97	108	119	130	141	151	162	171	180	189	196	
	Drive Type: 4							Seed Rate in Pounds Per Acre														
7.5 in	0	25	35	47	60	75	90	106	123	140	158	176	194	212	230	247	264	279	294	308	320	

32291C

Bahia Grass (*Paspalum notatum*)

	Seed Rate Handle Setting																					
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	
Rows	Drive Type: 1							Seed Rate in Pounds Per Acre (based on 40 pounds/bushel)														
7.5 in	0	2.2	3.1	4.5	6.3	8.5	11	14	17	20	23	27	30	33	37	40	43	46	48	50	52	
	Drive Type: 2							Seed Rate in Pounds Per Acre														
7.5 in	0	4.4	6.4	9.3	13	18	23	28	35	41	48	55	62	69	76	82	88	94	99	104	107	
	Drive Type: 3							Seed Rate in Pounds Per Acre														
7.5 in	0	6.6	10	14	20	26	34	43	52	62	72	82	93	103	113	123	132	141	149	156	161	
	Drive Type: 4							Seed Rate in Pounds Per Acre														
7.5 in	0	11	16	23	32	43	56	70	85	101	117	134	151	168	185	201	216	230	243	254	263	

32292C

Barley (*Hordeum vulgare*)

	Seed Rate Handle Setting																					
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	
Rows	Drive Type: 1							Seed Rate in Pounds Per Acre (based on 51 pounds/bushel)														
7.5 in	0	4.7	6.3	8.4	11	14	17	20	24	27	31	35	39	42	45	49	51	54	56	57	58	
	Drive Type: 2							Seed Rate in Pounds Per Acre														
7.5 in	0	10	13	17	22	28	35	42	49	56	64	72	79	86	93	100	105	110	115	118	120	
	Drive Type: 3							Seed Rate in Pounds Per Acre														
7.5 in	0	14	19	26	34	43	52	62	72	83	94	105	116	126	137	147	156	165	173	180	186	
	Drive Type: 4							Seed Rate in Pounds Per Acre														
7.5 in	0	22	32	43	56	70	85	101	118	135	153	171	189	206	223	239	255	269	282	293	303	

32293C

Rate Charts, Main Seed Box, continued...

Buckwheat (*Fagopyrum esculentum*)

	Seed Rate Handle Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Drive Type: 1										Seed Rate in Pounds Per Acre (based on 48 pounds/bushel)										
7.5 in	0	3.9	5.7	7.9	10	13	16	20	23	27	30	34	37	41	44	47	50	52	54	55	57
	Drive Type: 2										Seed Rate in Pounds Per Acre										
7.5 in	0	8.0	12	16	22	27	34	41	48	55	62	70	77	84	90	96	102	107	111	114	116
	Drive Type: 3										Seed Rate in Pounds Per Acre										
7.5 in	0	15	18	24	31	39	49	60	72	85	97	110	123	136	148	159	170	179	187	192	197
	Drive Type: 4										Seed Rate in Pounds Per Acre										
7.5 in	0	24	30	39	50	64	80	98	118	138	159	180	201	222	241	260	277	292	304	314	320

32295C

Buffalograss (*Buchloe dactyloides*)

	Seed Rate Handle Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Drive Type: 1										Seed Rate in Pounds Per Acre (based on 23 pounds/bushel)										
7.5 in	0	1.2	1.9	2.9	4.0	5.3	6.6	8.0	9.4	11	12	14	15	16	17	18	19	20	20	20	20
	Drive Type: 2										Seed Rate in Pounds Per Acre										
7.5 in	0	2.4	4.0	6.0	8.3	11	14	16	19	22	25	28	31	33	36	38	39	40	41	41	41
	Drive Type: 3										Seed Rate in Pounds Per Acre										
7.5 in	0	4.4	6.4	8.9	12	16	20	24	28	33	37	42	46	50	54	57	60	62	63	63	63
	Drive Type: 4										Seed Rate in Pounds Per Acre										
7.5 in	0	7.2	10	15	20	26	32	39	46	54	61	68	75	82	88	93	97	101	103	103	103

32296C

Bermuda Grass (*Cynodon dactylon*)

	Seed Rate Handle Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Drive Type: 1										Seed Rate in Pounds Per Acre (based on 60 pounds/bushel)										
7.5 in	0	1.8	3.5	5.3	7.2	9.1	11	13	15	17	19	21	23	25	27	29	31	33	35	36	38
	Drive Type: 2										Seed Rate in Pounds Per Acre										
7.5 in	0	3.6	7.2	11	15	19	23	27	31	35	39	43	47	51	55	59	63	67	71	75	78
	Drive Type: 3										Seed Rate in Pounds Per Acre										
7.5 in	0	5.7	11	17	22	28	34	40	46	52	58	64	70	76	81	87	92	97	102	107	112
	Drive Type: 4										Seed Rate in Pounds Per Acre										
7.5 in	0	9.3	18	27	36	46	55	65	75	85	94	104	114	123	132	141	150	159	167	175	182

32294C

Rate Charts, Main Seed Box, continued...

K-31 Fescue (*Festuca*)

	Seed Rate Handle Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Drive Type: 1							Seed Rate in Pounds Per Acre (based on 21 pounds/bushel)													
7.5 in	0	1.9	2.9	4.0	5.2	6.4	7.7	9.0	10	12	13	14	16	17	18	19	20	21	21	22	23
	Drive Type: 2							Seed Rate in Pounds Per Acre													
7.5 in	0	3.9	5.9	8.2	11	13	16	18	21	24	27	29	32	34	37	39	41	43	44	45	46
	Drive Type: 3							Seed Rate in Pounds Per Acre													
7.5 in	0	6.6	9.3	12	16	19	23	27	31	35	39	43	47	51	55	58	61	64	67	69	70
	Drive Type: 4							Seed Rate in Pounds Per Acre													
7.5 in	0	11	15	20	25	31	37	44	50	57	64	70	77	83	89	95	100	105	109	112	115

32297C

 Flax (*Linum usitatissimum*) or Sudan
 (*Sorghum bicolor* subsp. *drummondii*)

	Seed Rate Handle Setting																					
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	
Rows	Drive Type: 1							Seed Rate in Pounds Per Acre (based on 55 pounds/bushel)														
7.5 in	0	4.6	6.8	9.3	12	15	19	22	26	29	33	37	41	44	48	52	55	59	62	65	67	
	Drive Type: 2							Seed Rate in Pounds Per Acre														
7.5 in	0	9.4	14	19	25	31	38	45	53	60	68	76	84	91	99	107	114	121	127	133	139	
	Drive Type: 3							Seed Rate in Pounds Per Acre														
7.5 in	0	14	21	29	37	46	56	66	76	86	97	108	118	129	140	150	160	169	179	187	195	
	Drive Type: 4							Seed Rate in Pounds Per Acre														
7.5 in	0	23	35	47	61	75	91	107	124	141	158	175	193	210	228	244	261	276	291	305	318	

32298C

 Eastern Gamma Grass - Pete
 (*Tripsacum dactyloides*)

	Seed Rate Handle Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Drive Type: 1										Seed Rate in Pounds Per Acre										
7.5 in	0	3.8	5.3	7.0	9.0	11	14	16	19	21	24	26	29	31	34	36	38	40	41	42	43
	Drive Type: 2										Seed Rate in Pounds Per Acre										
7.5 in	0	7.9	11	14	18	23	28	33	38	44	49	54	60	65	69	74	78	81	84	86	88

32299C

Rate Charts, Main Seed Box, continued...

Kentucky Blue Grass (*Poa pratensis*)

	Seed Rate Handle Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Drive Type: 1							Seed Rate in Pounds Per Acre (based on 23 pounds/bushel)													
7.5 in	0	1.5	2.1	2.9	3.7	4.6	5.6	6.7	7.7	8.8	10	11	12	13	14	15	16	17	17	18	18
	Drive Type: 2							Seed Rate in Pounds Per Acre													
7.5 in	0	3.0	4.4	5.9	7.7	10	12	14	16	18	20	23	25	27	29	31	33	34	35	37	37
	Drive Type: 3							Seed Rate in Pounds Per Acre													
7.5 in	0	4.8	7.2	10	12	15	18	21	24	27	30	33	36	39	42	44	47	49	51	53	55
	Drive Type: 4							Seed Rate in Pounds Per Acre													
7.5 in	0	7.9	12	16	20	25	29	34	39	44	49	54	59	63	68	72	76	80	83	87	89

32300C

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

	Seed Rate Handle Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Drive Type: 1							Seed Rate in Pounds Per Acre (based on 60 pounds/bushel)													
7.5 in	0	4.8	6.8	9.2	12	15	18	21	25	28	32	35	39	42	46	49	52	55	58	60	62
	Drive Type: 2							Seed Rate in Pounds Per Acre													
7.5 in	0	10	14	19	24	30	37	43	51	58	65	73	80	87	94	101	107	113	118	123	127
	Drive Type: 3							Seed Rate in Pounds Per Acre													
7.5 in	0	14	20	28	36	45	55	65	76	87	98	109	120	131	141	151	161	170	178	185	191
	Drive Type: 4							Seed Rate in Pounds Per Acre													
7.5 in	0	22	33	45	59	74	90	107	124	142	160	178	196	213	230	247	262	277	290	301	311

32301C

Milo (*Sorghum*)

	Seed Rate Handle Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Drive Type: 1							Seed Rate in Pounds Per Acre (based on 60 pounds/bushel)													
7.5 in	0	4.6	7.1	10	14	17	22	26	31	36	40	45	50	55	60	64	68	72	75	78	80
	Drive Type: 2							Seed Rate in Pounds Per Acre													
7.5 in	0	9.4	15	21	28	36	44	54	63	73	83	93	103	113	122	131	140	148	154	160	165

32302C

Rate Charts, Main Seed Box, continued...

Oats (*Avena sativa*)

	Seed Rate Handle Setting																					
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	
Rows	Drive Type: 1							Seed Rate in Pounds Per Acre (based on 37 pounds/bushel)														
7.5 in	0	1.8	3.1	4.5	6.1	7.8	10	12	14	16	18	20	22	24	26	28	30	32	33	35	36	
	Drive Type: 2							Seed Rate in Pounds Per Acre														
7.5 in	0	3.7	6.3	9.2	13	16	20	24	28	32	37	41	46	50	54	58	62	65	69	71	74	
	Drive Type: 3							Seed Rate in Pounds Per Acre														
7.5 in	0	6.8	10	14	18	24	30	36	43	50	57	64	71	78	84	90	96	101	105	109	111	
	Drive Type: 4							Seed Rate in Pounds Per Acre														
7.5 in	0	11	16	22	30	39	48	59	70	81	93	104	115	127	137	147	156	164	171	177	181	

32303C

Orchard Grass Potomac (*Dactylis glomerata*)

	Seed Rate Handle Setting																					
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	
Rows	Drive Type: 1							Seed Rate in Pounds Per Acre (based on 18 pounds/bushel)														
7.5 in	0	1.1	1.5	2.0	2.7	3.3	4.1	4.9	5.8	6.7	7.6	8.5	9.4	10	11	12	13	13	14	14	15	
	Drive Type: 2							Seed Rate in Pounds Per Acre														
7.5 in	0	2.3	3.1	4.2	5.5	6.9	8.5	10	12	14	16	18	19	21	23	25	26	27	28	29	30	
	Drive Type: 3							Seed Rate in Pounds Per Acre														
7.5 in	0	3.3	4.6	6.1	7.9	10	12	14	17	20	22	25	27	30	32	35	37	39	41	43	44	
	Drive Type: 4							Seed Rate in Pounds Per Acre														
7.5 in	0	5.4	7.4	10	13	16	20	24	28	32	36	40	45	49	53	57	61	64	67	70	72	

32304C

Peas (*Pisum sativum*)

	Seed Rate Handle Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Drive Type: 1							Seed Rate in Pounds Per Acre (based on 61 pounds/bushel)													
7.5 in	0	2.1	5.2	8.7	13	17	21	26	30	35	40	44	49	53	57	61	64	67	70	72	73
	Drive Type: 2							Seed Rate in Pounds Per Acre													
7.5 in	0	4.4	11	18	26	34	43	53	62	72	81	91	100	109	117	125	132	138	143	147	150
	Drive Type: 3							Seed Rate in Pounds Per Acre													
7.5 in	0	3.2	12	22	33	45	58	71	84	98	112	125	138	151	163	174	184	192	199	205	209
	Drive Type: 4							Seed Rate in Pounds Per Acre													
7.5 in	0	5.2	20	36	54	74	94	116	138	160	182	204	225	246	265	283	299	313	325	334	341

32305C

Rate Charts, Main Seed Box, continued...

Pinto Beans (*Phaseolus vulgaris*)

	Seed Rate Handle Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Drive Type: 1										Seed Rate in Pounds Per Acre (based on 61 pounds/bushel)										
7.5 in	0	4.1	6.8	10	14	18	22	27	32	37	42	47	52	56	60	64	68	71	73	75	76
	Drive Type: 2										Seed Rate in Pounds Per Acre										
7.5 in	0	8.5	14	21	28	37	46	56	65	76	86	96	106	115	124	132	140	146	151	155	157
	Drive Type: 3										Seed Rate in Pounds Per Acre										
7.5 in	0	14	22	31	42	54	67	81	95	109	124	139	153	167	180	192	203	213	221	227	231
	Drive Type: 4										Seed Rate in Pounds Per Acre										
7.5 in	0	23	35	51	68	88	109	131	155	178	203	226	250	272	294	313	331	347	360	369	376

32306C

Rape (*Brassica napus*)

	Seed Rate Handle Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Drive Type: 1										Seed Rate in Pounds Per Acre (based on 51 pounds/bushel)										
7.5 in	0	4.2	6.2	8.5	11	14	16	19	22	25	28	31	34	37	40	43	46	49	52	54	56
	Drive Type: 2										Seed Rate in Pounds Per Acre										
7.5 in	0	8.6	13	18	23	28	34	39	45	52	58	64	70	77	83	89	95	101	106	111	116
	Drive Type: 3										Seed Rate in Pounds Per Acre										
7.5 in	0	13	18	25	31	39	47	56	65	75	84	94	104	113	122	131	139	147	154	161	166
	Drive Type: 4										Seed Rate in Pounds Per Acre										
7.5 in	0	22	30	40	51	64	77	91	106	122	137	153	169	184	199	214	227	240	252	262	271

32307C

Rice, Long Grain (*Oryza sativa indica*)

	Seed Rate Handle Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Drive Type: 1										Seed Rate in Pounds Per Acre (based on 47 pounds/bushel)										
7.5 in	0	0.9	3.3	5.8	8.3	11	14	16	19	21	24	26	29	31	33	35	37	39	40	41	42
	Drive Type: 2										Seed Rate in Pounds Per Acre										
7.5 in	0	1.8	6.7	12	17	22	28	33	39	44	49	54	59	64	68	72	76	79	82	85	87
	Drive Type: 3										Seed Rate in Pounds Per Acre										
7.5 in	0	3.0	10	18	25	33	40	48	56	63	71	78	85	92	99	106	113	119	125	130	136
	Drive Type: 4										Seed Rate in Pounds Per Acre										
7.5 in	0	4.9	17	29	41	53	66	78	91	103	115	127	139	151	162	173	183	194	203	213	221

32308C

Rate Charts, Main Seed Box, continued...

Rice, Short Grain (*Oryza sativa japonica*,
Oryza sativa sinica)

	Seed Rate Handle Setting																					
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	
Rows	Drive Type: 1										Seed Rate in Pounds Per Acre (based on 43 pounds/bushel)											
7.5 in	0	2.5	4.6	6.9	9.3	12	14	17	20	23	25	28	31	33	36	38	40	42	44	46	47	
	Drive Type: 2										Seed Rate in Pounds Per Acre											
7.5 in	0	5.2	9.5	14	19	24	30	35	41	47	52	58	63	69	74	79	83	87	91	94	97	
	Drive Type: 3										Seed Rate in Pounds Per Acre											
7.5 in	0	11	16	21	28	35	43	51	59	68	77	85	94	102	110	117	123	128	133	136	138	
	Drive Type: 4										Seed Rate in Pounds Per Acre											
7.5 in	0	18	26	35	45	57	70	83	97	111	125	139	153	166	179	190	200	209	217	222	225	

32309C

Rye (*Secale cereale*)

	Seed Rate Handle Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Drive Type: 1							Seed Rate in Pounds Per Acre (based on 57 pounds/bushel)													
7.5 in	0	3.8	6.6	10	14	18	22	27	31	36	41	46	51	56	61	65	69	73	76	79	81
	Drive Type: 2							Seed Rate in Pounds Per Acre													
7.5 in	0	7.8	14	20	28	36	45	55	65	75	85	95	105	115	124	133	142	149	156	162	167
	Drive Type: 3							Seed Rate in Pounds Per Acre													
7.5 in	0	13	21	31	42	54	67	81	96	111	126	142	157	173	188	202	216	228	240	250	259
	Drive Type: 4							Seed Rate in Pounds Per Acre													
7.5 in	0	22	35	50	68	88	109	132	156	181	206	231	257	282	306	329	352	372	391	407	422

32310C

Perennial Rye Grass - Palmer
(*Lolium perenne*, *Lolium multiflorum*)

	Seed Rate Handle Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Drive Type: 1							Seed Rate in Pounds Per Acre (based on 36 pounds/bushel)													
7.5 in	0	2.4	3.6	4.9	6.3	7.9	10	11	13	15	17	19	21	22	24	26	27	29	30	31	31
	Drive Type: 2							Seed Rate in Pounds Per Acre													
7.5 in	0	4.9	7.3	10	13	16	20	23	27	31	35	39	42	46	50	53	56	59	61	63	65
	Drive Type: 3							Seed Rate in Pounds Per Acre													
7.5 in	0	10	12	15	19	24	29	35	41	47	54	61	67	73	79	85	90	94	97	99	101
	Drive Type: 4							Seed Rate in Pounds Per Acre													
7.5 in	0	16	19	24	31	38	47	57	67	77	88	99	109	120	129	138	146	153	158	162	164

32311C

Rate Charts, Main Seed Box, continued...

Soybeans (*Glycine max*)

	Seed Rate Handle Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Drive Type: 1 Seed Rate in Pounds Per Acre (based on 58 pounds/bushel)																				
7.5 in	0	4.0	6.9	10	14	18	22	26	31	35	40	44	49	53	57	61	64	67	70	72	74
	Drive Type: 2 Seed Rate in Pounds Per Acre																				
7.5 in	0	8.3	14	21	29	37	45	54	63	73	82	91	100	109	117	125	132	139	144	149	152
	Drive Type: 3 Seed Rate in Pounds Per Acre																				
7.5 in	0	11	21	31	43	55	67	80	93	106	120	133	146	158	170	182	193	203	212	220	228
	Drive Type: 4 Seed Rate in Pounds Per Acre																				
7.5 in	0	18	34	51	70	89	110	131	152	173	195	216	237	258	278	297	314	331	346	359	371

32312C

Sunflower (*Helianthus annuus*)

	Seed Rate Handle Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Drive Type: 1 Seed Rate in Pounds Per Acre (based on 28 pounds/bushel)																				
7.5 in	0	0.3	1.7	3.2	4.8	6.5	8.3	10	12	14	16	18	20	22	23	25	27	28	30	31	32
	Drive Type: 2 Seed Rate in Pounds Per Acre																				
7.5 in	0	0.6	3.4	6.5	10	13	17	21	25	29	33	37	41	44	48	52	55	58	61	64	66
	Drive Type: 3 Seed Rate in Pounds Per Acre																				
7.5 in	0	2.5	5.4	9.0	13	17	22	27	33	38	44	50	55	61	66	71	76	80	84	88	90
	Drive Type: 4 Seed Rate in Pounds Per Acre																				
7.5 in	0	4.1	8.9	15	21	28	36	45	54	63	72	81	90	99	108	116	124	131	137	143	147

32313C

Tiffany Teff, Coated (*Eragrostis tef*)

	Seed Rate Handle Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Drive Type: 1 Seed Rate in Pounds Per Acre (based on 65 pounds/bushel)																				
7.5 in	0	4.0	6.3	8.8	12	14	18	21	24	28	31	35	39	43	47	51	54	58	62	65	69
	Drive Type: 2 Seed Rate in Pounds Per Acre																				
7.5 in	0	8.3	13	18	24	30	36	43	50	57	65	72	80	88	96	104	112	119	127	134	142
	Drive Type: 3 Seed Rate in Pounds Per Acre																				
7.5 in	0	12	19	27	36	45	54	64	75	86	97	109	120	132	144	156	167	179	190	202	212
	Drive Type: 4 Seed Rate in Pounds Per Acre																				
7.5 in	0	20	32	44	58	73	88	105	122	140	158	177	196	215	235	254	273	292	311	329	346

32314C

Rate Charts, Main Seed Box, continued...

Wheat (*Triticum*)

	Seed Rate Handle Setting																					
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	
Rows	Drive Type: 1							Seed Rate in Pounds Per Acre (based on 64 pounds/bushel)														
7.5 in	0	7.1	8.9	11	14	18	22	26	30	35	40	45	50	55	59	64	68	72	75	78	80	
	Drive Type: 2							Seed Rate in Pounds Per Acre														
7.5 in	0	15	18	23	29	37	45	53	63	72	82	93	103	113	122	131	140	147	154	159	164	
	Drive Type: 3							Seed Rate in Pounds Per Acre														
7.5 in	0	18	26	34	44	55	68	80	94	108	122	136	150	164	177	190	201	212	222	230	236	
	Drive Type: 4							Seed Rate in Pounds Per Acre														
7.5 in	0	30	42	56	72	90	110	131	153	176	199	222	245	267	289	309	329	346	362	375	385	

32315C

Wheatgrass (*Pascopyrum smithii*, *Agropyron elongatum*)

	Seed Rate Handle Setting																					
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	
Rows	Drive Type: 1							Seed Rate in Pounds Per Acre (based on 23 pounds/bushel)														
7.5 in	0	0.9	1.7	2.4	3.2	4.0	4.9	5.8	6.6	7.5	8.4	9.3	10	11	12	13	14	14	15	16	16	
	Drive Type: 2							Seed Rate in Pounds Per Acre														
7.5 in	0	1.9	3.4	4.9	6.6	8.3	10	12	14	15	17	19	21	23	25	26	28	29	31	32	33	
	Drive Type: 3							Seed Rate in Pounds Per Acre														
7.5 in	0	3.5	5.3	7.4	10	12	15	17	20	23	25	28	31	33	36	39	41	43	45	47	49	
	Drive Type: 4							Seed Rate in Pounds Per Acre														
7.5 in	0	5.7	8.7	12	16	20	24	28	32	37	41	46	50	55	59	63	67	70	74	77	79	

32316C

Native Grass Rate

Setting Native Grass Seed Rate

The Series II Native Grass Box is for seeding fluffy, native grass blends like Big Blue Stem, Indian Grass, and Side Oats Grama.

Refer to Figure 7

Native Grass mixes are too variable for seed rate tables to be useful. Seeding rate for Native Grass is determined by calibration, and set by:

- Drive Type handle ① at the ground drive gearbox ②,
- Driven sprocket ② at the Native Grass box, using a sprocket from the storage tree ③, and;
- Rate Reduction kit ③ (See manual 202-583M), using an alternate set of ground drive gearbox output and Native Grass jackshaft input sprockets.

Land Pride recommends that you calibrate and adjust your drill to help insure an accurate seeding rate. Fine rate adjustment is done with the Driven sprocket.

Native Grass Rate Calibration

Before completing these steps, review “**Calibration Overview**” on page 2.

This Native Grass calibration works on any type of native grass no matter what seed type, weight, or density. It also does not require any particular initial drive setup.

The drill's revolutions-per-acre at the native grass cup allows you to calibrate the output in pounds by cup sprocket revolution per acre.

The pounds per acre in the seed charts are based on drills with 5.70-8 8-Ply ground drive tires. Be certain that your tires are properly inflated (see Operator's Manual).

To calibrate seed mix:

1. Know your intended field seeding rate in pounds per acre.
2. Raise drill and install lift-assist lock.
3. Rotate the right ground drive wheel to see that feed cups and drive are working properly and are free from foreign matter.
4. Record the weight of one or more empty containers large enough to hold seed metered from three rows of the native grass box.

Refer to Figure 2 on page 2

5. Remove the calibration crank from its storage stob on the left top side of the main toolbar.

Refer to Figure 2 on page 2

6. At the right main (Native Grass) gearbox input jackshaft, place the hex socket of the crank on whichever end allows most convenient full crank rotations.

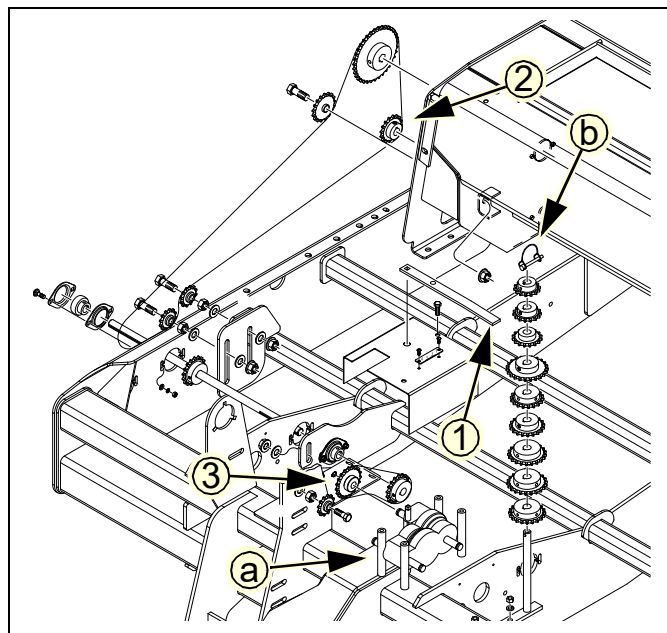


Figure 7
Native Grass Rate Control

28378

NOTICE

Seeding Rate Risk:

Calibrate. All native grass mixes vary in weight, seed type, and density. You must calibrate each mix.

Factors that affect seeding rates are: weight of seed, size of seed, relative humidity and moisture content of the seed, ratio of inert material to seed, different proportions of seed types affecting density, tire configuration, tire pressure, and tire slippage. The charts in this manual are based on factory tires at recommended inflation.

For example:

You desire to plant at a **TargetRate** of:

32
pounds per acre

For example:

3 containers each weigh:

1.5 lb

or a total of:

4.5 lb.

7. Fill three or more Native Grass compartments at least $\frac{1}{2}$ full of seed. Pull seed hoses off openers under those compartments.
8. Turn gauge wheel or crank several times to fill seed cups with seed. Turn wheel or crank until seed falls to the ground from each cup.
9. Place empty container(s) under the seed tubes to gather the seed as it is metered.

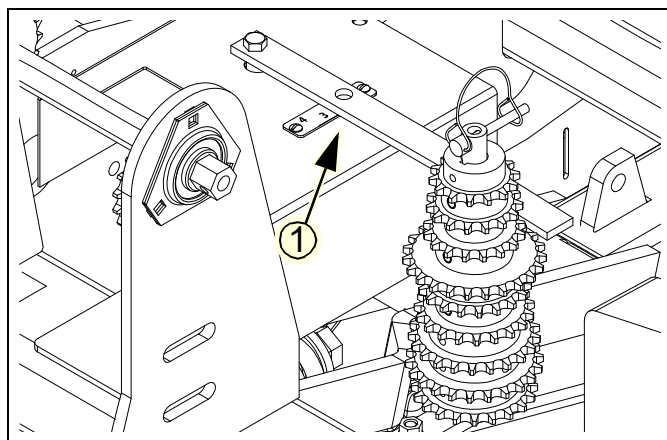


Figure 8
Native Grass Drive Type 2

28374

Refer to Figure 8 and Figure 9

10. Note the Drive Type ① and Native Grass driven sprocket ②. Also establish whether or not optional Native Grass Rate Reduction is installed. This information is needed for step 12 and for the calculations later.

Note: If you are planting a mix similar to mixes planted in the past with this drill, set the Drive Type and final sprocket for the previous mix.

11. Note the current reading of the acremeter, unless you do not plan to rely on it for the calibration.
12. Rotate crank or ground drive tire for one acre or hectare (see chart on page 2).
13. Check that the three seed cups have plenty of seed coming into them.

For example, the drill is presently configured for:
Drive Type: 2
Driven Sprocket: 20T
Standard Range: (no Rate Reduction)



Figure 9
Native Grass Driven Sprocket 20T

28379

14. Calculate the area rate at current drill settings. Weigh metered seed, and subtract the initial weight of the container. Divide this number by *SampleRows* (the number of cups measured, typically 3). Multiply by the number of openers (which is less than 13 if using alternate spacing)

$$\text{NetWeight} = \text{GrossWeight} - \text{EmptyContainer(s)}$$

$$\text{PoundsPerSeedCup} = \frac{\text{NetWeight}}{\text{SampleRows}}$$

$$\text{PoundsPerAcre} = \text{PoundsPerSeedCup} \times 13$$

15. If the measured rate is within 3% of your desired field rate, no further adjustment is necessary. Skip to step 21.

The rate just measured is used to locate a new setting in the Native Grass Cup Rate tables on page 21.

For example, *GrossWeight* of containers & sample is:
13 pounds

The *NetWeight* (pounds) is:
 $8.5 = 13 - 4.5$

The *PoundsPerSeedCup* per acre is:
 $2.83 = 8.5 \div 3$

The *PoundsPerAcre* is:
 $36.8 = 2.83 \times 13$

In our example, the 36.8 lbs/ac rate is 115% of the desired 32 lbs/ac rate, or 15% high. An adjustment is indicated.

16. Calculate the revolutions needed for the target field rate. Multiply the calibration revolution rate by the ratio of desired to measured seeding rate. Divide the rate just measured by the cup revolution rate (from the tables) at the current drill settings.

$$\text{FinalRevs} = \text{RevolutionsPerAcre} \times \frac{\text{TargetRate}}{\text{PoundsPerAcre}}$$

17. Find this number (or the closest number to this) in the drive setting chart. This gives Drive Type and Native Grass sprocket sizes. If the setting needed is below 50 revs/ac, the Rate Reduction kit is required.
18. Set the new Drive Type at the gearbox lever.
19. Remove the access panel at the right end of the Native Grass box, and exchange the current Driven sprocket for the new one (from the storage tree at drill front).
20. As necessary, exchange installed sprockets at gearbox with those from the Rate Reduction kit (see instructions in kit).

You may want to repeat the calibration procedure if your results vary greatly from the seed rate chart.

21. Remove the crank from the jackshaft and store it on the stob.
22. When drilling, check the amount of seed you are using by noting the acres drilled, amount of seed added to drill, and the level of seed in the box. If you suspect you are drilling more or less seed than desired, and you have accurately calibrated the drill to you seed, you may need to change your sprocket arrangement to compensate for your field conditions.

For example:

Drive Type 2, 20T Driven, and no Rate Reduction is a cup shaft rate of:

139 *RevolutionsPerAcre*

The *FinalRevs* shaft rate needed for the target rate is

$$120.8 = 139 \times 32 \div 36.8$$

For example:

The closest setting to 120.8 revs/ac is:

120 (found in the Standard rate table)

which is a configuration of:

Drive Type: 2

Driven Sprocket: 23T

Native Grass Meter Shaft Rates

These charts are used during calibration. They provide rotations of the meter shaft per acre, and are not seed rate charts. For metric charts, see page 46.

Once the pounds per shaft revolution is known for your seed mix, the charts provide the Transmission, Drive Type, and Final Sprocket required.

Standard Shaft Rates

Drive Type	Native Grass Driven Sprocket (Standard Rate)									
	14T	15T	16T	17T	18T	19T	20T	21T	22T	23T
	Native Grass Cup Revolutions Per Acre									
1	96.3	89.9	84.2	79.3	74.9	70.9	67.4	64.2	61.3	58.6
2	198	185	173	163	154	146	139	132	126	120
3	297	277	260	244	231	219	208	198	189	181
4	484	452	424	399	377	357	339	323	308	295

32343A

Shaft Rates with Seed Rate Reduction

Drive Type	Native Grass Driven Sprocket (with Rate Reduction Kit)									
	14T	15T	16T	17T	18T	19T	20T	21T	22T	23T
	Native Grass Cup Revolutions Per Acre									
1	54.4	50.8	47.6	44.8	42.3	40.1	38.1	36.3	34.6	33.1
2	112	104	97.9	92.1	87.0	82.4	78.3	74.6	71.2	68.1
3	168	157	147	138	130	124	117	112	107	102
4	274	255	239	225	213	202	192	182	174	167

32343B

The Native Grass attachment includes, as standard equipment, an agitator.

NOTICE

Equipment Damage Risk:

Do not transport with seed loaded in the Native Grass box. Load seed at field. Transport with seed loaded compacts the seed at the meter inlets and can easily clog agitators and meters. Drive system operation in the field can then damage the agitator and drive components.

Seed Lubricant

Add graphite seed lubricant after loading seed in the Native Grass box. For humid planting environments, double or triple graphite as needed. Use $\frac{1}{3}$ cup (80 mL) across the top of the seed mix. Graphite part numbers:

821-042C 1 pound (0.45 kg) bottle

821-060C 5 pound (2.3 kg) jug

When drilling, check the amount of seed you are using by noting the acres drilled, amount of seed added to drill, and the level of seed in the box. If you suspect you are drilling more or less seed than desired, and you have accurately calibrated the drill to your seed, change your sprocket arrangement to compensate for your field conditions.

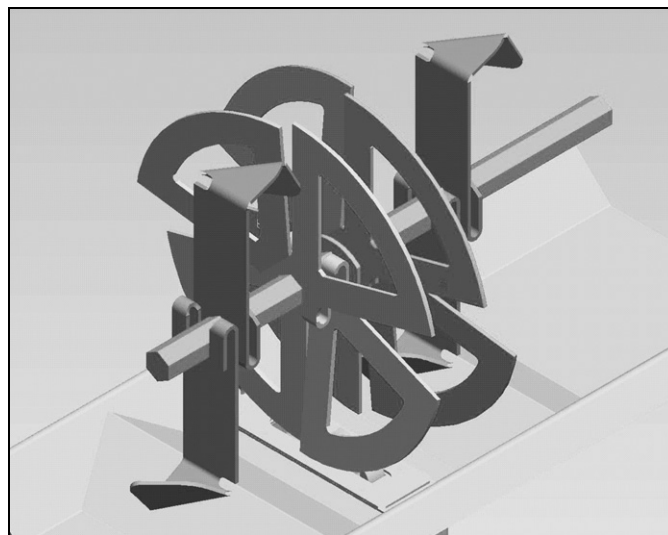


Figure 10
Native Grass Agitator Series II

25041

Brome Grass Seeding

When the seeding material is strictly brome grass, you can set an initial rate based on the tables following, and then calibrate. You can also use the procedure for mixes (page 18), but what follows is usually easier.

Refer to Figure 11

1. Find the desired pounds per acre on the Brome Grass Rate Charts on page 24. Determine which Drive Type and Final Drive sprocket are required, and for low rates, if Seed Rate Reduction is needed.
2. Set the Drive Type with the gearbox handle (see “**Setting Drive Type**” on page 4).
3. Install the sprocket from storage on the right-hand side of the Native Grass box. To change sprockets, loosen the chain idlers and remove chain. Replace with desired sprocket.
4. Fill three or more compartments at least half full of seed at the outboard end of the box. Pull seed tubes off the openers at rows to be sampled. This example assumes three rows are used.
5. To perform this calibration, you need a scale that is accurate at the aggregate sample size, and three (3) light containers, each capable of holding the expected *SamplePerRow*. Record the empty container weights. The total is *ContainerWeight*.
6. Estimate the sample sizes. This example simulates a full acre.

$$\text{SamplePerRow} = \frac{\text{TargetRate}}{\text{RowCount}}$$

$$\text{ExpectedSample} = \text{SamplePerRow} \times \text{SampledRows}$$

7. Raise the drill so the gauge wheel is out of ground contact.
8. Remove the calibration crank from its storage stob. Store the retaining pin on the stob.
9. Place the hex socket of the crank on the gearbox input jackshaft (see page 2).
10. If the Main Box or optional Small Seeds box are loaded, disconnect their drive or set their rates to zero (unless you are simultaneously calibrating multiple boxes).
11. Rotate the crank several turns to ensure that the drives and seed cups are engaged, working properly, free from foreign material, and that seed is flowing steadily from the meters. Stop.
12. Note the current reading of the acremeter, unless you do not plan to rely on it for the calibration.
13. Empty the sample containers back into the seed box, and place them back under the three hoses to gather metered seed.

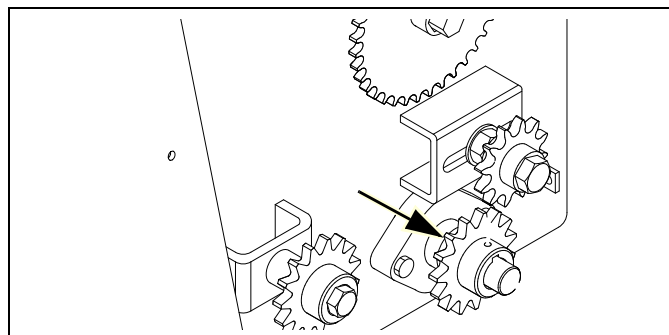


Figure 11
Native Grass Final Drive Sprocket

18670

Example: You want to apply brome at a *TargetRate* of $12\frac{1}{4}$ pounds per acre. The nearest chart rate is:
12.0

Standard Transmission,
Drive Type: 2
Final Drive: 22T

Example: 3 containers, each weighing 8 oz. ($\frac{1}{2}$ lb.).
ContainerWeight is 1.5 lb:
 $1.5 = 3 \times 0.5$

SamplePerRow is 0.92 pounds:

$$0.92 = \frac{12.25}{13}$$

ExpectedSample is 2.8 pounds:

$$2.8 = 0.92 \times 3$$



Crushing Hazard:

Install lift cylinder lock on a raised drill.

14. Turn crank at a steady rate for the number of turns specified on page 2, or until one acre or hectare is tallied on acremeter. While turning, check that cups have ample seed coming into them.

3P806NT crank rotations for 1 acre:
656 S/N 1172214-, 358 S/N 1172215+

15. Weigh metered seed. Subtract initial weight of container(s).

$$\text{NetWeight} = \text{GrossWeight} - \text{ContainerWeight}$$

Example: the containers weighed a total of 7.66 pounds after test. *NetWeight* is 3.16 pounds.

$$3.16 = 7.66 - 4.5$$

16. Divide the sample *NetWeight* by *SampleRows* (the number of row sampled, typically 3). Multiply by number of openers on your drill to determine the total of pounds per acre seeded.

$$\text{MeasuredRate} = \frac{\text{NetWeight}}{\text{SampleRows}} \times \text{OpenerCount}$$

Example: *MeasuredRate* is:
13.7 lbs/ac

$$13.7 = \frac{3.16}{3} \times 13$$

17. If the calibration sample is more than a few percent different than the desired *FieldRate*, pick a new chart rate based on the difference factor.

$$\text{NewChart} = \frac{\text{TargetRate}}{\text{MeasuredRate}} \times \text{PreviousChart}$$

Example:

$$\text{TargetRate} = 12.25$$

$$\text{PreviousChart} = 12.0$$

$$\text{MeasuredRate} = 13.7$$

The new chart rate is:

$$\text{NewChart} = 10.7 \text{ pounds per acre}$$

18. Find the chart rate closest to *NewChart*. Change the Final Drive sprocket and Drive Type as needed. If the correction went off the Standard chart to the low side, consider installing the Rate Reduction kit.

$$10.7 = \frac{12.25}{13.7} \times 12.0$$

19. You may want to repeat calibration procedure at the new setting if your results varied greatly from the Seed Rate Chart.

The nearest Standard chart rate to 10.7 is 11.0, or Drive Type: 2

Final Sprocket: 24T

Alternatively, you could use the Reduced Rate chart, which has a 10.5 rate setting at Drive Type 3, 22T.

When drilling, check the amount of seed you are using by noting the acres drilled, amount of seed added to drill, and the level of seed in the box. If you suspect you are drilling more or less seed than desired, and you have accurately calibrated the drill to your seed, you may need to change your sprocket arrangement to compensate for your field conditions.

Brome Rate Charts

Factors which will affect seeding rates are: weight of seed, size of seed, relative humidity and moisture content of seed, ratio of inert material to seed, different proportions of seed types affecting density, tire configuration, tire pressure, and tire slippage. Seed mixes vary.

The rates are based on a 5.70-8 8-Ply tire inflated to factory specification (see Operator's Manual).

For metric charts, see page 47.

NOTICE

Field Results Risk:

The charts are to be used as a reference to your own brome grass mix. All brome grass mixes vary so this is why you must calibrate each mix using the chart only as a starting point.

Standard Brome Rates

Drive Type	Native Grass Driven Sprocket (Standard Rate)									
	15	16	17	18	19	20	21	22	23	24
	Brome Grass Seeding Rate in Pounds per Acre									
1	8.6	8.1	7.6	7.2	6.8	6.4	6.1	5.9	5.6	5.4
2	17.7	16.5	15.6	14.7	13.9	13.2	12.6	12.0	11.5	11.0
3	26.5	24.8	23.4	22.1	20.9	19.9	18.9	18.1	17.3	16.5
4	43.2	40.5	38.1	36.0	34.1	32.4	30.8	29.4	28.2	27.0

32336A

Reduced Brome Rates

Drive Type	Native Grass Driven Sprocket (with Rate Reduction Kit)									
	15	16	17	18	19	20	21	22	23	24
	Brome Grass Seeding Rate in Pounds per Acre									
1	5.0	4.7	4.4	4.2	3.9	3.7	3.5	3.4	3.2	3.1
2	10.3	9.6	9.0	8.5	8.1	7.7	7.3	7.0	6.7	6.4
3	15.4	14.4	13.6	12.8	12.1	11.5	11.0	10.5	10.0	9.6
4	25.0	23.5	22.1	20.9	19.8	18.8	17.9	17.0	16.3	15.6

32336B

Small Seeds Rate

Seeding rate from the optional Small Seeds Attachment is controlled entirely by the seed rate handle on the small seeds box. No sprocket changes are required, and small seeds rate is unaffected by settings for the main seed box or other optional boxes.

Refer to Figure 12

To set Small Seeds rate, loosen the wing nut ① at the handle. Move the lever ② until the indicator is about 10 higher than the intended setting, then return it to that setting. Tighten nut.

Set the initial rate based on the charts on page 28 and page 29.

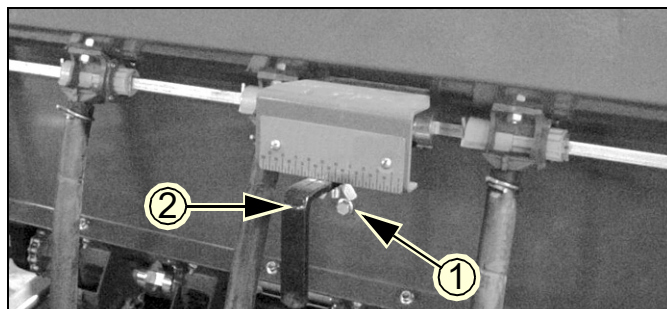


Figure 12
Small Seeds Rate Handle

32634

Small Seeds Rate Calibration

Differences will exist between the tested seed and field conditions used to generate the Small Seeds Rate Charts, and your seed and conditions. To accurately achieve your target population, Land Pride recommends calibrating.

Due to the large number of crank revolutions per acre (656 S/N 1172214-, 358 S/N 1172215+) and per hectare (1622 S/N 1172214-, 883 S/N 1172215+), a practical calibration is a simulation of $\frac{1}{10}$ th acre or $\frac{1}{10}$ th hectare.

1. Estimate the sample sizes.

$$\text{RateSample} = \frac{\text{TargetRate}}{10}$$

$$\text{SamplePerRow} = \frac{\text{RateSample}}{\text{RowCount}}$$

$$\text{ExpectedSample} = \text{SamplePerRow} \times \text{SampledRows}$$

2. To perform this calibration, you need a scale that is accurate near the aggregate sample size, and three (3) light weight containers, each capable of holding a row's sample.
3. Raise the drill so the gauge wheel is out of ground contact. If the gauge wheel is in ground contact, cranking is difficult or impossible.
4. Remove the calibration crank from its storage stob. Store the retaining pin on the stob.
5. Rotate the crank several turns to ensure that the drives and seed cups are engaged, working properly, free from foreign material, and that seed is flowing steadily from the meters. Stop.
6. Pull the small seed hoses off the top of three opener seed tubes, at the top of the openers. Place the hoses into each sample container.

Example: You want to apply alfalfa at 12 pounds per acre. *RateSample* is:

$$1.2 = \frac{12}{10}$$

Example: *SamplePerRow* is
0.09 pounds:

$$0.092 = \frac{1.2}{13}$$

Example: 3 rows are to be used in the sampling.
ExpectedSample is:
0.28 pounds

$$0.277 = 0.092 \times 3$$

Example: 3 containers each weighing 0.20 lb or:
0.60 lb total

CAUTION

Crushing Hazard:

Install lift cylinder lock on a raised drill.

7. If not already done, set the Small Seeds Rate Handle.
8. Load seed above the rows to be sampled. Load well more than the expected sample size.
9. Rotate the crank several turns to ensure that the drives and seed cups are engaged, working properly, free from foreign material, and that seed is flowing steadily from the meters. Stop.
10. Note the current reading of the acremeter, unless you do not plan to rely on it for the calibration.
11. Empty the sample containers back into the seed box, and place them back under the three hoses to gather metered seed.
12. Turn crank at a steady rate for the number of turns specified on page 2, or until one tenth acre or hectare is tallied on acremeter. While turning, check that cups have ample seed coming into them.
13. Weigh metered material. Subtract initial weight of container(s).
$$\text{NetWeight} = \text{GrossWeight} - \text{ContainerWeights}$$
14. Divide the net material weight by three. Multiply by number of openers on your drill, and then by ten, to determine the total of pounds per acre applied.
$$\text{MeasuredRate} = \frac{\text{NetWeight}}{\text{SampleRows}} \times \text{RowCount} \times 10$$
15. Divide the desired original field rate by the measured rate to calculate a scale adjustment factor.
$$\text{CorrectionFactor} = \frac{\text{FieldRate}}{\text{MeasuredRate}}$$
16. Multiply the scale setting just used times correction factor to obtain the next scale setting to use.
$$\text{NextScale} = \text{PreviousScale} \times \text{CorrectionFactor}$$
17. Set the Small Seeds Rate Handle to the new scale setting.
18. You may want to repeat calibration procedure at the new setting if your results varied greatly from the Seed Rate Chart, or if you must operate near the ends of the Seed Rate handle scale (0-20 or 90-100).
19. Check that your tire(s) is (are) properly inflated. See **"Tire Inflation Chart"** in the Operator's manual.
20. With calibration complete, store calibration crank, reinstall any removed chains or sprockets and reconnect seed hoses.

When drilling, check seeding rate by noting acres drilled, amount of seed added to drill and seed level in drill box. If you are seeding more or less than desired, adjust rate slightly to compensate for field conditions.

Example: planting alfalfa at 12 pounds/ac has an initial small seeds rate handle setting of:
60

Crank rotations for one tenth acre is:
65 S/N 1172214-, 35 S/N 1172215+

Example: the three containers weighed a total of 0.85 pounds after test, *NetWeight* is:
0.25 pounds
$$0.25 = 0.85 - 0.60$$

Example: *MeasuredRate* is:
10.8 lbs/ac, lower than the target rate of 12.
$$10.8 = \frac{0.25}{3} \times 13 \times 10$$

For example: the target rate was 12 lbs/ac: the *CorrectionFactor* is:
1.11
$$1.11 = \frac{12}{10.8}$$

For example: the previous scale setting was 60, the *NextScale* setting is:
66.5
$$66.5 = 60 \times 1.11$$

Small Seeds Row Shut-Off

If alternate row spacing is required for small seeds, optional plugs are available to block flow inside the seed box tray.

1. Clean-out seed. The seed box must be empty prior to inserting plugs. See **"Small Seeds Box Clean-Out"** in Operator's manual.
2. Before installing plugs, inspect the seed boxes for existing factory-installed plugs. These are blocking extra unused seed ports. You may want to identify these plugs with an indelible marker.
3. Insert one plug at each row to shut off. Verify the seed hose path before inserting the plug, as some hoses do not make a strictly vertical drop to their row units.
4. Review seed rate settings prior to planting. Perform calibration calculations with the actual active row count.

When removing plugs to restore rows to operation, be sure to not disturb a factory-installed plug.

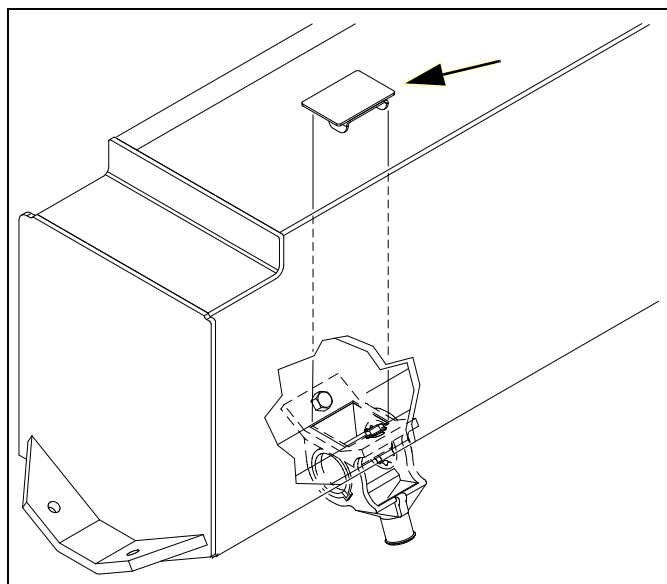


Figure 13
Small Seeds Tube Plug

27407

Small Seeds Rate Charts

U.S customary units. Metric charts begin on page 43.

Alfalfa, Red Alsike, Crimson Clover

	Small Seeds Cup Lever Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Seeding Rate in Pounds per Acre																				
7.5 inch	0	0.0	1.8	2.8	3.9	4.8	6.0	7.0	7.9	9.0	10.0	11.1	12.1	13.2	14.0	15.3	16.2	17.2	18.3	19.3	20.3

Kentucky Bluegrass, Fescue, Annual Rye Grass

	Small Seeds Cup Lever Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Seeding Rate in Pounds per Acre																				
7.5 inch	0	0.0	0.2	.9	1.5	2.2	2.7	3.3	3.7	4.2	4.6	5.1	5.5	5.9	6.3	6.7	7.0	7.4	7.7	8.1	8.4

Bermuda, Red Top, Lespedeza Unhulled, Sercia, Sand, Weeping Love Grass

	Small Seeds Cup Lever Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Seeding Rate in Pounds per Acre																				
7.5 inch	0	0.0	0.5	0.9	1.4	2.1	2.6	3.3	4.0	4.7	5.3	5.8	6.3	6.7	7.2	7.6	8.2	8.8	9.3	9.8	10.4

Red & Sweet Clover, Lespedeza Hulled

	Small Seeds Cup Lever Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Seeding Rate in Pounds per Acre																				
7.5 inch	0	0.0	1.2	2.7	4.2	5.7	7.2	9.1	10.6	12.3	13.7	15.3	16.7	18.1	19.7	21.2	22.7	24.2	25.8	27.2	28.6

Orchard Grass

Small Seeds Cup Lever Setting																					
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Seeding Rate in Pounds per Acre																				
7.5 inch	0	0.0	0.0	0.2	0.5	0.7	1.1	1.2	1.6	1.9	2.3	2.6	2.8	3.2	3.5	3.9	4.0	4.4	4.6	4.9	5.1

Rate Charts, Small Seeds Box, continued...

Millet, Reed Canary

	Small Seeds Cup Lever Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Seeding Rate in Pounds per Acre																				
7.5 inch	0	0.3	1.2	2.0	2.8	3.6	4.4	5.2	6.0	6.8	7.6	8.4	9.3	10.1	10.9	11.7	12.5	13.3	14.1	14.9	15.1

Ladino Clover, Canary Grass, Timothy, Canola

	Small Seeds Cup Lever Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Seeding Rate in Pounds per Acre																				
7.5 inch	0	0.0	0.9	1.6	2.6	3.9	4.9	6.1	7.4	8.6	9.8	11.1	12.5	13.7	14.9	16.3	17.6	18.8	20.4	21.9	23.5

Birdsfoot, Trefoil, Sudan

	Small Seeds Cup Lever Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Seeding Rate in Pounds per Acre																				
7.5 inch	0	0.0	1.4	2.6	4.2	5.4	7.0	8.6	10.2	11.9	13.5	15.4	17.0	18.8	20.5	22.5	24.0	25.8	27.6	29.1	30.9

Fertilizer Rate

Setting Fertilizer Rate

The fertilizer meters are driven by a chain system independent of the seed meter drives, and are unaffected by Drive Type. Fertilizer rate is adjusted with the Rate Adjuster at the fertilizer box.

Fertilizer application rates vary with fertilizer type, density and particle size. Relative humidity and field conditions can also affect application rates. The chart is based on fertilizer with average particle size and a density of 65 pounds per cubic foot. Initially set rate according to charts, then calibrate the drill to your material as described on this page.

Accurately obtaining the desired application rate requires three steps:

1. Adjusting target rate for large differences between material and chart density.
2. setting the Rate Adjuster ① to the scale ② value from the chart, and;
3. calibration: checking predicted application rate, and resetting rate adjuster as needed.

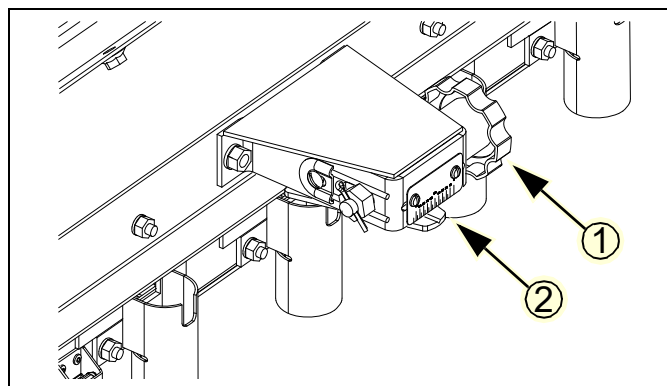


Figure 14
Fertilizer Rate Adjuster

32673

Fertilizer Rate Chart

Fertilizer Rates in Pounds per Acre

	Setting Number																	
	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Application Rate - Pounds per Acre (based on 65 lbs/cu.ft)																	
7.5 inch	11	20	38	54	72	89	105	123	138	157	174	187	209	223	234	242	245	247

Metric Fertilizer Rate Chart

	Setting Number																		
	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Application Rate - Kilograms per Hectare (based on 1.04 kg/liter)																		
19.1cm (7.5in)	13	20	27	42	57	76	98	112	126	150	175	189	202	222	243	265	287	310	331

Adjusting for Density

The fertilizer meter rate charts are based on fertilizer with a density of 65 pounds per cubic foot (1.04 kg/liter). If your fertilizer density is within a few percent of that, you can skip this step and rely on calibration to determine final Rate Adjuster setup.

For larger variances, particularly with very low densities, pre-compensating can simplify calibration, by choosing a different target chart value for the application rate.

Density Conversion Charts

U.S. Customary Units

Density, lb/ft ³	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0
Conversion Factor	1.45	1.30	1.20	1.10	1.00	0.93	0.87	0.81

Metric

Density, kg/liter	725	800	875	950	1041	1125	1200	1275
Conversion Factor	1.44	1.30	1.19	1.10	1.00	0.93	0.87	0.82

- Find your actual material density. Normally, this reported on the container in which it was supplied. If not, weigh a known volume and calculate it.
- Find your material Density in the table at right, and the Conversion Factor below it.
- Adjust your target application rate prior to consulting the Fertilizer Rate Chart.

$$\text{AdjustedRate} = \text{TargetRate} \times \text{ConversionFactor}$$
- Consult the Fertilizer Rate Chart for the Adjusted rate.
- Calibrate using the Rate Adjuster setting for the adjusted rate.

Example: You want to apply 109 pounds per acre.
 $\text{TargetRate} = 109$

Example: Your fertilizer has a density of 45 pounds per cubic foot.

$\text{ConversionFactor} = 1.45$ (from chart)
 $\text{Adjusted Rate} = 158$ pounds per acre

$$158 = 109 \times 1.45$$

Example: The adjusted rate is 158. The closest chart rate of 157 corresponds to a Rate Adjuster setting of: 60

Fertilizer Rate Calibration

Differences will exist between the tested fertilizer and field conditions used to generate the Rate Chart, and your fertilizer and conditions. To accurately achieve your target application, Land Pride recommends calibrating.

Perform the calibration with the opener frames lowered (if the openers are raised, the clutch disengaged). Leave the tractor hitched for movement control.

Due to the large number of crank revolutions per acre (656 S/N 1172214-, 358 S/N 1172215+) and per hectare (1622 S/N 1172214-, 883 S/N 1172215+), a practical calibration is a simulation of $\frac{1}{10}$ th acre or $\frac{1}{10}$ th hectare.

1. Estimate the sample sizes.

$$\text{RateSample} = \frac{\text{TargetRate}}{10}$$

$$\text{SamplePerRow} = \frac{\text{RateSample}}{\text{RowCount}}$$

$$\text{ExpectedSample} = \text{SamplePerRow} \times \text{SampledRows}$$

2. To perform this calibration, you need a scale that is accurate near the aggregate sample size, and 3 light weight containers, each capable of holding a row's sample.
3. Raise the drill so the gauge wheel is out of ground contact.
4. Remove the calibration crank from its storage stob. Store the retaining pin on the stob.
5. Place the hex socket of the crank on the gearbox input jackshaft (see page 2).
6. Pull the fertilizer hoses off the top of three openers, at the top of the openers. Place the hoses into each sample container.
7. If not already done, make any density correction, then using the chart for the *TargetRate*, set rate adjuster. If seed is loaded, remove the drive chain for the seed box (unless you are simultaneously calibrating seed rate).
8. Load fertilizer above the rows to be sampled. Load well more than the expected sample size.

CAUTION

Possible Agricultural Chemical Hazard:

Follow material supplier recommendations for safety precautions in handling fertilizer.

9. Rotate the crank several turns counter-clockwise to ensure that the drive and meters are engaged, working properly, free from foreign material, and that material is flowing steadily from the meters. Stop.
10. Note the current reading of the acremeter, unless you do not plan to rely on it for the calibration.

Example: You want to apply 109 pounds per acre, and want to simulate $\frac{1}{10}$ th acre. *RateSample* is 10.9.

$$10.9 = \frac{109}{10}$$

Example: *SamplePerRow* is 0.84:

$$0.84 = \frac{10.9}{13}$$

Example: 3 rows are to be used in the sampling. *ExpectedSample* is 2.52:

$$2.52 = 0.84 \times 3$$

Example: 3 containers each weighing 0.5 lb or 1.5 lb total

CAUTION

Crushing Hazard:

Install lift cylinder lock on a raised drill.

See example on page 31, which determined an initial rate adjuster setting of:
60



11. Empty the sample containers back into the fertilizer box, and place them back under the three hoses to gather metered material.

12. Turn crank at a steady until one tenth acre is tallied on acremeter or for the number of turns from the chart on page 2.

13. Weigh metered material. Subtract initial weight of container(s).

$$NetWeight = GrossWeight - ContainerWeights$$

Crank rotations for one tenth acre is:
65 S/N 1172214-, 35 S/N 1172215+

Example: *GrossWeight* is 3.69 pounds.
NetWeight is 2.19 pounds

$$2.19 = 3.69 - 1.5$$

14. Divide the net material weight by the number of row sampled. Multiply by number of openers on your drill, and by 10 if a $\frac{1}{10}$ th sample size was collected, to determine the total of pounds per acre applied.

$$MeasuredRate = \frac{NetWeight}{SampledRows} \times RowCount \times 10$$

Example: *MeasuredRate* is 95 lbs/ac

$$95 = \frac{2.19}{3} \times 13 \times 10$$

15. Divide the desired *TargetRate* by the *MeasuredRate* to calculate a scale adjustment factor.

$$CorrectionFactor = \frac{TargetRate}{MeasuredRate}$$

Example: the *TargetRate* was 109 lbs/ac:
the *CorrectionFactor* is 1.15

$$1.15 = \frac{109}{95}$$

16. Multiply the scale setting just used (the *PreviousScale*, which is the initial adjusted setting for the first calibration run) times the *CorrectionFactor* to obtain the next scale setting to use.

$$NextScale = PreviousScale \times CorrectionFactor$$

Example: the previous scale setting was 60,
the next scale setting is 69.

$$69 = 60 \times 1.15$$

17. Reset the fertilizer rate adjuster based on the settings at the new chart rate.

18. You may want to note the current scale setting and repeat the calibration procedure at the new setting if your results varied greatly from the desired field rate.

19. With calibration complete, store the calibration crank, re-install any seed chain removed and reconnect fertilizer hoses.

20. Check that your end-wheel tires are 5.70-8 8-Ply, and properly inflated. See “**Tire Inflation Chart**” in the Operator’s manual.

21. When drilling, check application rate by noting acres treated, amount of fertilizer added to drill and fertilizer level in drill box. If you are applying more or less than desired, adjust rate slightly to compensate for field conditions.

Appendix

Metric Rate Charts, Main Seed Box

See page 4 for instructions.

Charts in U.S. customary units begin on page 9.

Alfalfa (*Medicago sativa*)

	Seed Rate Handle Setting																									
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100					
Rows	Drive Type: 1						Seed Rate in Kilograms Per Hectare															(based on 0.77 kg/litre)				
19.1 cm	0	5.2	7.5	10	13	16	20	24	28	32	36	40	44	48	52	57	61	64	68	71	74					
	Drive Type: 2						Seed Rate in Kilograms Per Hectare																			
19.1 cm	0	11	15	21	27	34	41	49	57	65	74	82	91	99	108	116	124	132	140	146	153					
	Drive Type: 3						Seed Rate in Kilograms Per Hectare																			
19.1 cm	0	17	24	32	41	51	62	73	85	97	109	121	134	146	158	170	181	192	202	212	220					
	Drive Type: 4						Seed Rate in Kilograms Per Hectare																			
19.1 cm	0	28	40	53	67	84	101	119	138	157	177	197	218	238	258	277	295	313	330	345	359					

32291D

Bahia Grass (*Paspalum notatum*)

	Seed Rate Handle Setting																									
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100					
Rows	Drive Type: 1					Seed Rate in Kilograms Per Hectare																(based on 0.51 kg/litre)				
19.1 cm	0	2.4	3.5	5.1	7.1	10	12	16	19	22	26	30	34	38	41	45	48	51	54	57	59					
	Drive Type: 2					Seed Rate in Kilograms Per Hectare																				
19.1 cm	0	5.0	7.1	10	15	20	25	32	39	46	54	62	69	77	85	92	99	105	111	116	120					
	Drive Type: 3					Seed Rate in Kilograms Per Hectare																				
19.1 cm	0	7.5	11	16	22	29	38	48	58	69	81	92	104	116	127	138	148	158	167	174	181					
	Drive Type: 4					Seed Rate in Kilograms Per Hectare																				
19.1 cm	0	12	17	25	36	48	62	78	95	113	131	150	170	189	207	225	242	258	272	284	294					

32292D

Metric Rate Charts, Main Seed Box, continued...

Barley (*Hordeum vulgare*)

	Seed Rate Handle Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Drive Type: 1					Seed Rate in Kilograms Per Hectare (based on 0.66 kg/litre)															
19.1 cm	0	5.3	7.1	9.4	12	15	19	23	27	31	35	39	43	47	51	54	58	60	62	64	65
	Drive Type: 2					Seed Rate in Kilograms Per Hectare															
19.1 cm	0	11	15	19	25	32	39	47	55	63	72	80	89	97	105	112	118	124	128	132	134
	Drive Type: 3					Seed Rate in Kilograms Per Hectare															
19.1 cm	0	15	22	29	38	48	58	69	81	93	105	117	130	142	153	165	175	185	194	202	208
	Drive Type: 4					Seed Rate in Kilograms Per Hectare															
19.1 cm	0	25	36	48	62	78	95	113	132	152	171	191	211	231	250	268	285	301	316	329	340

32293D

Buckwheat (*Fagopyrum esculentum*)

	Seed Rate Handle Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Drive Type: 1					Seed Rate in Kilograms Per Hectare (based on 0.62 kg/litre)															
19.1 cm	0	4.4	6.4	8.9	12	15	18	22	26	30	34	38	42	46	49	53	56	58	60	62	63
	Drive Type: 2					Seed Rate in Kilograms Per Hectare															
19.1 cm	0	9.0	13	18	24	31	38	46	53	62	70	78	86	94	101	108	114	120	124	128	130
	Drive Type: 3					Seed Rate in Kilograms Per Hectare															
19.1 cm	0	17	20	26	34	44	55	68	81	95	109	124	138	152	166	179	190	200	209	216	220
	Drive Type: 4					Seed Rate in Kilograms Per Hectare															
19.1 cm	0	27	33	43	56	72	90	110	132	155	178	202	225	249	271	291	310	327	341	352	359

32295D

Buffalograss (*Buchloe dactyloides*)

	Seed Rate Handle Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Drive Type: 1					Seed Rate in Kilograms Per Hectare (based on 0.30 kg/litre)															
19.1 cm	0	4.4	6.4	8.9	12	15	18	22	26	30	34	38	42	46	49	53	56	58	60	62	63
	Drive Type: 2					Seed Rate in Kilograms Per Hectare															
19.1 cm	0	9.0	13	18	24	31	38	46	53	62	70	78	86	94	101	108	114	120	124	128	130
	Drive Type: 3					Seed Rate in Kilograms Per Hectare															
19.1 cm	0	17	20	26	34	44	55	68	81	95	109	124	138	152	166	179	190	200	209	216	220
	Drive Type: 4					Seed Rate in Kilograms Per Hectare															
19.1 cm	0	27	33	43	56	72	90	110	132	155	178	202	225	249	271	291	310	327	341	352	359

32296D

Metric Rate Charts, Main Seed Box, continued...

Bermuda Grass (*Cynodon dactylon*)

	Seed Rate Handle Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Drive Type: 1 Seed Rate in Kilograms Per Hectare (based on 0.77 kg/litre)																				
19.1 cm	0	2.0	3.9	6.0	8.0	10	12	15	17	19	21	24	26	28	30	32	35	37	39	41	43
	Drive Type: 2 Seed Rate in Kilograms Per Hectare																				
19.1 cm	0	4.0	8.1	12	17	21	25	30	34	39	44	48	53	58	62	67	71	75	80	84	88
	Drive Type: 3 Seed Rate in Kilograms Per Hectare																				
19.1 cm	0	6.4	12	19	25	31	38	45	51	58	65	72	78	85	91	97	103	109	115	120	125
	Drive Type: 4 Seed Rate in Kilograms Per Hectare																				
19.1 cm	0	10	20	30	41	51	62	73	84	95	106	117	127	138	148	159	168	178	187	196	204

32294D

K-31 Fescue (*Festuca*)

	Seed Rate Handle Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Drive Type: 1 Seed Rate in Kilograms Per Hectare (based on 0.27 kg/litre)																				
19.1 cm	0	2.1	3.2	4.5	5.8	7.2	8.6	10	12	13	15	16	17	19	20	21	22	23	24	25	25
	Drive Type: 2 Seed Rate in Kilograms Per Hectare																				
19.1 cm	0	4.3	6.7	9.2	12	15	18	21	24	27	30	33	36	39	41	44	46	48	50	51	52
	Drive Type: 3 Seed Rate in Kilograms Per Hectare																				
19.1 cm	0	7.4	10	14	18	22	26	30	35	39	44	48	53	57	61	65	69	72	75	77	79
	Drive Type: 4 Seed Rate in Kilograms Per Hectare																				
19.1 cm	0	12	17	22	29	35	42	49	57	64	72	79	86	93	100	106	112	118	122	126	129

32297D

Flax (*Linum usitatissimum*) or Sudan
(*Sorghum bicolor* subsp. *drummondii*)

	Seed Rate Handle Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Drive Type: 1 Seed Rate in Kilograms Per Hectare (based on 0.71 kg/litre)																				
19.1 cm	0	5.1	7.6	10	14	17	21	25	29	33	37	41	46	50	54	58	62	66	69	73	76
	Drive Type: 2 Seed Rate in Kilograms Per Hectare																				
19.1 cm	0	11	16	22	28	35	43	51	59	67	76	85	94	102	111	119	128	135	143	149	155
	Drive Type: 3 Seed Rate in Kilograms Per Hectare																				
19.1 cm	0	16	24	32	42	52	62	73	85	97	109	121	133	145	156	168	179	190	200	210	219
	Drive Type: 4 Seed Rate in Kilograms Per Hectare																				
19.1 cm	0	26	39	53	68	85	102	120	138	158	177	197	216	236	255	274	292	310	326	342	356

32298D

Metric Rate Charts, Main Seed Box, continued...

Eastern Gamma Grass - Pete
(*Tripsacum dactyloides*)

	Seed Rate Handle Setting																					
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	
Rows	Drive Type: 1					Seed Rate in Kilograms Per Hectare																
19.1 cm	0	4.3	5.9	7.9	10	13	15	18	21	24	27	30	33	35	38	40	42	44	46	47	48	
	Drive Type: 2					Seed Rate in Kilograms Per Hectare																
19.1 cm	0	8.8	12	16	21	26	31	37	43	49	55	61	67	73	78	83	87	91	94	97	98	

32299D

Kentucky Blue Grass (*Poa pratensis*)

	Seed Rate Handle Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Drive Type: 1						Seed Rate in Kilograms Per Hectare (based on 0.30 kg/litre)														
19.1 cm	0	5.1	7.6	10	14	17	21	25	29	33	37	41	46	50	54	58	62	66	69	73	76
	Drive Type: 2						Seed Rate in Kilograms Per Hectare														
19.1 cm	0	11	16	22	28	35	43	51	59	67	76	85	94	102	111	119	128	135	143	149	155
	Drive Type: 3						Seed Rate in Kilograms Per Hectare														
19.1 cm	0	16	24	32	42	52	62	73	85	97	109	121	133	145	156	168	179	190	200	210	219
	Drive Type: 4						Seed Rate in Kilograms Per Hectare														
19.1 cm	0	26	39	53	68	85	102	120	138	158	177	197	216	236	255	274	292	310	326	342	356

32300D

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

	Seed Rate Handle Setting																					
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	
Rows	Drive Type: 1						Seed Rate in Kilograms Per Hectare (based on 0.77 kg/litre)															
19.1 cm	0	5.3	7.6	10	13	17	20	24	28	31	36	40	44	47	51	55	58	62	65	67	69	
	Drive Type: 2						Seed Rate in Kilograms Per Hectare															
19.1 cm	0	11	16	21	27	34	41	49	57	65	73	81	89	98	105	113	120	127	133	138	143	
	Drive Type: 3						Seed Rate in Kilograms Per Hectare															
19.1 cm	0	15	23	31	41	51	62	73	85	98	110	122	135	147	158	170	180	190	199	207	214	
	Drive Type: 4						Seed Rate in Kilograms Per Hectare															
19.1 cm	0	25	37	51	66	83	101	120	139	159	179	199	219	239	258	277	294	310	325	338	349	

32301D

Metric Rate Charts, Main Seed Box, continued...

Milo (*Sorghum*)

	Seed Rate Handle Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Drive Type: 1										Seed Rate in Kilograms Per Hectare (based on 0.77 kg/litre)										
19.1 cm	0	5.1	7.9	11	15	20	24	29	34	40	45	51	56	62	67	72	76	80	84	87	90
	Drive Type: 2										Seed Rate in Kilograms Per Hectare										
19.1 cm	0	11	16	23	31	40	50	60	71	82	93	104	116	127	137	147	157	165	173	180	185

32302D

Oats (*Avena sativa*)

	Seed Rate Handle Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Drive Type: 1										Seed Rate in Kilograms Per Hectare (based on 0.48 kg/litre)										
19.1 cm	0	2.0	3.4	5.0	6.8	8.8	11	13	15	18	20	22	25	27	29	32	34	36	37	39	40
	Drive Type: 2										Seed Rate in Kilograms Per Hectare										
19.1 cm	0	4.2	7.0	10	14	18	22	27	32	36	41	46	51	56	61	65	69	73	77	80	83
	Drive Type: 3										Seed Rate in Kilograms Per Hectare										
19.1 cm	0	7.7	11	15	21	27	33	40	48	56	64	72	79	87	94	101	107	113	118	122	124
	Drive Type: 4										Seed Rate in Kilograms Per Hectare										
19.1 cm	0	12	18	25	34	43	54	66	78	91	104	117	129	142	154	165	175	184	192	198	203

32303D

Orchard Grass Potomac (*Dactylis glomerata*)

	Seed Rate Handle Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Drive Type: 1										Seed Rate in Kilograms Per Hectare (based on 0.23 kg/litre)										
19.1 cm	0	1.3	1.7	2.3	3.0	3.8	4.6	5.5	6.5	7.5	8.5	10	11	12	12	13	14	15	16	16	16
	Drive Type: 2										Seed Rate in Kilograms Per Hectare										
19.1 cm	0	2.6	3.5	4.7	6.1	7.7	9.5	11	13	15	18	20	22	24	26	27	29	31	32	33	34
	Drive Type: 3										Seed Rate in Kilograms Per Hectare										
19.1 cm	0	3.7	5.1	6.8	8.9	11	14	16	19	22	25	28	31	34	36	39	42	44	46	48	49
	Drive Type: 4										Seed Rate in Kilograms Per Hectare										
19.1 cm	0	6.1	8.3	11	14	18	22	26	31	36	40	45	50	55	59	64	68	72	75	78	80

32304D

Metric Rate Charts, Main Seed Box, continued...

Peas (*Pisum sativum*)

	Seed Rate Handle Setting																					
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	
Rows	Drive Type: 1					Seed Rate in Kilograms Per Hectare (based on 0.79 kg/litre)																
19.1 cm	0	2.4	5.9	10	14	19	24	29	34	39	44	49	54	59	64	68	72	75	78	80	82	
	Drive Type: 2					Seed Rate in Kilograms Per Hectare																
19.1 cm	0	4.9	12	20	29	38	49	59	70	80	91	102	112	122	131	140	148	155	160	165	168	
	Drive Type: 3					Seed Rate in Kilograms Per Hectare																
19.1 cm	0	3.6	14	25	37	51	65	79	95	110	125	140	155	169	182	195	206	215	224	230	234	
	Drive Type: 4					Seed Rate in Kilograms Per Hectare																
19.1 cm	0	5.9	22	40	61	82	106	130	154	179	204	229	253	276	297	317	335	351	365	375	382	

32305D

Pinto Beans (*Phaseolus vulgaris*)

	Seed Rate Handle Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Drive Type: 1					Seed Rate in Kilograms Per Hectare (based on 0.79 kg/litre)															
19.1 cm	0	4.6	7.6	11	15	20	25	30	36	41	47	52	58	63	68	72	76	80	82	84	86
	Drive Type: 2					Seed Rate in Kilograms Per Hectare															
19.1 cm	0	10	16	23	32	41	51	62	73	85	96	108	119	129	139	148	157	164	169	173	176
	Drive Type: 3					Seed Rate in Kilograms Per Hectare															
19.1 cm	0	16	24	35	47	60	75	90	106	123	139	156	172	187	202	215	228	238	247	254	258
	Drive Type: 4					Seed Rate in Kilograms Per Hectare															
19.1 cm	0	26	40	57	76	98	122	147	173	200	227	254	280	305	329	351	371	389	403	414	421

32306D

Rape (*Brassica napus*)

	Seed Rate Handle Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Drive Type: 1					Seed Rate in Kilograms Per Hectare (based on 0.66 kg/litre)															
19.1 cm	0	4.7	7.0	10	12	15	18	21	25	28	32	35	38	42	45	49	52	55	58	61	63
	Drive Type: 2					Seed Rate in Kilograms Per Hectare															
19.1 cm	0	10	14	20	25	31	38	44	51	58	65	72	79	86	93	100	106	113	119	124	130
	Drive Type: 3					Seed Rate in Kilograms Per Hectare															
19.1 cm	0	15	21	27	35	44	53	63	73	84	94	105	116	127	137	147	156	165	173	180	186
	Drive Type: 4					Seed Rate in Kilograms Per Hectare															
19.1 cm	0	24	34	45	57	71	87	102	119	136	154	172	189	206	223	239	255	269	282	293	303

32307D

Metric Rate Charts, Main Seed Box, continued...

Rice, Long Grain (*Oryza sativa indica*)

	Seed Rate Handle Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Drive Type: 1					Seed Rate in Kilograms Per Hectare (based on 0.60 kg/litre)															
19.1 cm	0	1.0	3.7	6.5	9.3	12	15	18	21	24	27	30	32	35	37	39	42	43	45	46	47
	Drive Type: 2					Seed Rate in Kilograms Per Hectare															
19.1 cm	0	2.0	7.5	13	19	25	31	37	43	49	55	61	66	72	77	81	85	89	92	95	97
	Drive Type: 3					Seed Rate in Kilograms Per Hectare															
19.1 cm	0	3.3	12	20	28	37	45	54	62	71	79	87	96	104	111	119	126	133	140	146	152
	Drive Type: 4					Seed Rate in Kilograms Per Hectare															
19.1 cm	0	5.5	19	32	46	60	74	88	102	115	129	142	156	169	181	194	206	217	228	238	248

32308D

Rice, Short Grain (*Oryza sativa japonica*,
Oryza sativa sinica)

	Seed Rate Handle Setting																					
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	
Rows	Drive Type: 1					Seed Rate in Kilograms Per Hectare (based on 0.55 kg/litre)																
19.1 cm	0	2.8	5.2	7.7	10	13	16	19	22	25	29	32	35	38	40	43	45	48	50	51	53	
	Drive Type: 2					Seed Rate in Kilograms Per Hectare																
19.1 cm	0	5.8	11	16	21	27	33	40	46	52	59	65	71	77	83	88	93	98	102	105	108	
	Drive Type: 3					Seed Rate in Kilograms Per Hectare																
19.1 cm	0	12	18	24	31	39	48	57	67	76	86	96	105	114	123	131	138	144	149	153	155	
	Drive Type: 4					Seed Rate in Kilograms Per Hectare																
19.1 cm	0	20	29	39	51	64	78	93	109	124	140	156	172	186	200	213	225	235	243	249	252	

32309D

Rye (*Secale cereale*)

	Seed Rate Handle Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Drive Type: 1					Seed Rate in Kilograms Per Hectare (based on 0.73 kg/litre)															
19.1 cm	0	4.3	7.4	11	15	20	25	30	35	41	46	52	57	63	68	73	77	82	85	88	91
	Drive Type: 2					Seed Rate in Kilograms Per Hectare															
19.1 cm	0	8.8	15	23	31	41	51	61	72	84	95	107	118	129	139	150	159	168	175	182	187
	Drive Type: 3					Seed Rate in Kilograms Per Hectare															
19.1 cm	0	15	24	35	47	60	75	91	107	124	142	159	177	194	210	226	242	256	269	280	290
	Drive Type: 4					Seed Rate in Kilograms Per Hectare															
19.1 cm	0	25	39	57	76	99	123	148	175	203	231	259	288	316	343	369	394	417	438	457	473

32310D

Metric Rate Charts, Main Seed Box, continued...

Perennial Rye Grass - Palmer
(*Lolium perenne*, *Lolium multiflorum*)

	Seed Rate Handle Setting																														
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100										
Rows	Drive Type: 1						Seed Rate in Kilograms Per Hectare															(based on 0.46 kg/litre)									
19.1 cm	0	2.7	4.0	5.5	7.1	8.9	11	13	15	17	19	21	23	25	27	29	30	32	33	34	35										
	Drive Type: 2						Seed Rate in Kilograms Per Hectare																								
19.1 cm	0	5.5	8.2	11	15	18	22	26	30	35	39	43	48	52	56	59	63	66	68	71	72										
	Drive Type: 3						Seed Rate in Kilograms Per Hectare																								
19.1 cm	0	11	13	17	21	26	32	39	46	53	61	68	75	82	89	95	101	105	109	112	113										
	Drive Type: 4						Seed Rate in Kilograms Per Hectare																								
19.1 cm	0	18	22	27	35	43	53	63	75	87	99	111	123	134	145	155	164	171	178	182	184										

32311D

Soybeans (*Glycine max*)

	Seed Rate Handle Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Drive Type: 1					Seed Rate in Kilograms Per Hectare (based on 0.75 kg/litre)															
19.1 cm	0	4.5	7.8	11	16	20	25	29	34	40	45	50	55	59	64	68	72	76	79	81	83
	Drive Type: 2					Seed Rate in Kilograms Per Hectare															
19.1 cm	0	9.3	16	24	32	41	51	61	71	81	92	102	112	122	131	140	148	156	162	167	171
	Drive Type: 3					Seed Rate in Kilograms Per Hectare															
19.1 cm	0	12	23	35	48	61	75	90	104	119	134	149	163	177	191	204	216	228	238	247	255
	Drive Type: 4					Seed Rate in Kilograms Per Hectare															
19.1 cm	0	20	38	57	78	100	123	146	170	194	219	243	266	289	311	333	353	371	388	403	416

32312D

Sunflower (*Helianthus annuus*)

	Seed Rate Handle Setting																					
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	
Rows	Drive Type: 1						Seed Rate in Kilograms Per Hectare (based on 0.36 kg/litre)															
19.1 cm	0	0.3	1.9	3.5	5.3	7.3	9.3	11	13	16	18	20	22	24	26	28	30	32	33	35	36	
	Drive Type: 2						Seed Rate in Kilograms Per Hectare															
19.1 cm	0	0.7	3.8	7.3	11	15	19	23	28	32	37	41	45	50	54	58	62	65	68	71	74	
	Drive Type: 3						Seed Rate in Kilograms Per Hectare															
19.1 cm	0	2.8	6.1	10	15	20	25	31	37	43	49	56	62	68	74	80	85	90	94	98	101	
	Drive Type: 4						Seed Rate in Kilograms Per Hectare															
19.1 cm	0	4.6	10	16	24	32	41	50	60	70	81	91	101	111	121	130	139	147	154	160	165	

32313D

Metric Rate Charts, Main Seed Box, continued...

Tiffany Teff, Coated (*Eragrostis tef*)

	Seed Rate Handle Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Drive Type: 1 Seed Rate in Kilograms Per Hectare (based on 0.84 kg/litre)																				
19.1 cm	0	4.5	7.0	10	13	16	20	23	27	31	35	39	44	48	52	57	61	65	69	73	77
	Drive Type: 2 Seed Rate in Kilograms Per Hectare																				
19.1 cm	0	9.3	14	20	27	33	41	48	56	64	73	81	90	99	108	116	125	134	142	151	159
	Drive Type: 3 Seed Rate in Kilograms Per Hectare																				
19.1 cm	0	14	22	30	40	50	61	72	84	96	109	122	135	148	161	175	188	201	214	226	238
	Drive Type: 4 Seed Rate in Kilograms Per Hectare																				
19.1 cm	0	23	35	50	65	82	99	118	137	157	177	198	220	241	263	285	306	327	348	369	388

32314D

Wheat (*Triticum*)

	Seed Rate Handle Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Drive Type: 1 Seed Rate in Kilograms Per Hectare (based on 0.82 kg/litre)																				
19.1 cm	0	8.0	10	13	16	20	24	29	34	40	45	51	56	61	67	72	76	80	84	87	89
	Drive Type: 2 Seed Rate in Kilograms Per Hectare																				
19.1 cm	0	16	20	26	33	41	50	60	70	81	92	104	115	126	137	147	157	165	172	179	183
	Drive Type: 3 Seed Rate in Kilograms Per Hectare																				
19.1 cm	0	21	29	38	50	62	76	90	105	121	137	153	168	184	199	213	226	238	249	258	265
	Drive Type: 4 Seed Rate in Kilograms Per Hectare																				
19.1 cm	0	34	47	63	81	101	123	147	172	197	223	249	274	300	324	347	368	388	405	420	432

32315D

Wheatgrass (*Pascopyrum smithii*,
Agropyron elongatum)

	Seed Rate Handle Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Drive Type: 1 Seed Rate in Kilograms Per Hectare (based on 0.30 kg/litre)																				
19.1 cm	0	1.1	1.9	2.7	3.6	4.5	5.5	6.4	7.4	8.4	9.5	10	11	12	13	14	15	16	17	18	18
	Drive Type: 2 Seed Rate in Kilograms Per Hectare																				
19.1 cm	0	2.2	3.8	5.5	7.4	9.3	11	13	15	17	19	22	24	26	28	29	31	33	35	36	37
	Drive Type: 3 Seed Rate in Kilograms Per Hectare																				
19.1 cm	0	3.9	6.0	8.3	11	13	16	19	22	25	28	31	35	38	40	43	46	48	51	53	54
	Drive Type: 4 Seed Rate in Kilograms Per Hectare																				
19.1 cm	0	6.3	10	14	18	22	27	31	36	41	46	51	56	61	66	70	75	79	83	86	89

32316D

Metric Rate Charts, Small Seeds Box

See page 25 for instructions.

Charts in U.S. customary units begin on page 28.

Alfalfa, Red Alsike, Crimson Clover

	Small Seeds Cup Lever Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Seeding Rate in Kilograms per Hectare																				
19.1cm (7.5in)	0	0.0	2.0	3.2	4.4	5.4	6.8	7.9	8.9	10.1	11.3	12.5	13.6	14.9	15.8	17.2	18.3	19.4	20.6	21.7	22.9

Kentucky Bluegrass, Fescue, Annual Rye Grass

	Small Seeds Cup Lever Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Seeding Rate in Kilograms per Hectare																				
19.1cm (7.5in)	0	0.0	0.2	1.0	1.7	2.5	3.0	3.7	4.2	4.7	5.2	5.7	6.2	6.6	7.1	7.5	7.9	8.3	8.3	9.1	9.5

Bermuda, Red Top, Lespedeza Unhulled, Sercia, Sand, Weeping Love Grass

	Small Seeds Cup Lever Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Seeding Rate in Kilograms per Hectare																				
19.1cm (7.5in)	0	0.0	0.6	1.0	1.6	2.4	2.9	3.7	4.5	5.3	6.0	6.5	7.1	7.5	8.1	8.6	9.2	9.9	10.5	11.0	11.7

Red & Sweet Clover, Lespedeza Hulled

	Small Seeds Cup Lever Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Seeding Rate in Kilograms per Hectare																				
19.1cm (7.5in)	0	0.0	1.4	3.0	4.7	6.4	8.1	10.3	11.9	13.9	15.4	17.2	18.8	20.4	22.2	23.9	25.6	27.3	29.1	30.6	32.2

Orchard Grass

Small Seeds Cup Lever Setting																					
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Seeding Rate in Kilograms per Hectare																				
19.1cm (7.5in)	0	0.0	0.0	0.2	0.6	0.8	0.8	1.4	1.4	1.4	1.4	1.4	3.2	3.6	3.9	4.4	4.5	5.0	5.2	5.5	5.5

Metric Rate Charts, Small Seeds Box, continued...

Millet, Reed Canary

	Small Seeds Cup Lever Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Seeding Rate in Kilograms per Hectare																				
19.1cm (7.5in)	0	0.3	1.4	1.4	1.4	4.1	5.0	5.9	6.8	7.7	8.6	9.5	10.5	11.4	12.3	13.2	14.1	15.0	15.9	16.8	17.0

Ladino Clover, Canary Grass, Timothy, Canola

	Small Seeds Cup Lever Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Seeding Rate in Kilograms per Hectare																				
19.1cm (7.5in)	0	0.0	1.0	1.8	2.9	4.4	4.4	4.4	8.3	9.7	11.0	12.5	14.1	15.4	16.8	18.4	19.8	21.2	23.0	24.7	26.5

Birdsfoot, Trefoil, Sudan

	Small Seeds Cup Lever Setting																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Rows	Seeding Rate in Kilograms per Hectare																				
19.1cm (7.5in)	0	0.0	1.6	1.6	1.6	1.6	7.9	9.7	11.5	11.5	15.2	17.4	17.4	17.4	17.4	25.4	27.0	29.1	31.1	32.8	32.8

Metric Native Grass Rates

For U.S. customary units, see page 21.

Formulas	Metric Example
Know your Desired seed rate in pounds per acre: <i>TargetRate</i>	Example target seed rate: 40 kg per hectare
Choose the number of rows to sample.	Example: 3
Weigh the empty sample container(s): <i>ContainerWeight</i>	Example container are three 680 gram buckets: 2.04 kg
For a larger sample, we set the Drive Type high.	Example starting calibration Drive Type: 2
As there is only minor benefit in changing the final drive sprocket for calibration, we leave it as is.	Example final drive sprocket: 20T
Examine the transmission for Standard vs. Seed Rate Reduction/	Example transmission: Rate Reduction not installed: Standard
Operate crank/gauge wheel for one tenth hectare: <i>CalibrationRevs</i>	Example: 162 revolutions ($\frac{1}{10}^{th}$ of 1622)
Weigh the collected seed plus container(s): <i>GrossWeight</i>	Example: $GrossWeight = 4.2 \text{ kg}$
Obtain the net sample weight: $NetSample = GrossWeight - ContainerWeight$	Example: $2.16 = 4.2 - 2.04$, or: $NetSample = 2.16 \text{ kg}$
Determine the net sample weight per cup: $NetPerCup = \frac{NetSample}{SampledRows}$	Example: $2.16 \div 3$, or: $NetPerCup = 0.72 \text{ kg}$
Scale the sample to drill-wide: $NetFullWidth = NetPerCup \times 13$	Example: $93.5 = 0.72 \times 13$, or: $NetFullWidth = 9.35 \text{ kg}$
Scale the sample to a full hectare: $NetPerHa = NetFullWidth \times 10$	Example: $93.5 = 9.35 \times 10$, or: $NetPerHa = 93.5 \text{ kg/ha}$
Look up the number of meter shaft revolutions per ha: <i>CalChartRevs</i> for the current Drive Type, final sprocket and transmission configuration.	Example: Drive Type 2, 20T and Standard is: 342 cup revolutions per ha. $CalChartRevs = 342$
Determine the cup rate for this seed mix: $WeightPerRev = \frac{NetPerHa}{CalChartRevs}$	Example: $0.273 = 93.5 \div 342$, or: $WeightPerRev = 0.273 \text{ kg}$
Determine the number of revolutions required for the target field rate weight metered per shaft revolution: $TargetRevs = \frac{TargetRate}{WeightPerRev}$	Example: $146 = 40 \div 0.273$, or: $TargetRevs = 146$
Look up the Drive Type and final sprocket for <i>TargetRevs</i>	Example: Drive Type: 1 Final Sprocket: 23 T

Metric Native Grass Shaft Rates

These charts are used for calibration, providing rotations of meter shaft per ha. They are not seed rate charts.

For instructions, see page 18.

For charts in U.S. customary units, see page 21.

Metric Standard Shaft Rates

Drive Type	Native Grass Driven Sprocket (Standard Rate)									
	14T	15T	16T	17T	18T	19T	20T	21T	22T	23T
	Native Grass Cup Revolutions Per Hectare									
1	238	222	208	196	185	175	167	159	151	145
2	489	456	428	403	380	360	342	326	311	298
3	734	685	642	604	571	540	513	489	467	446
4	1197	1117	1047	985	931	882	838	798	761	728

32343C

Metric Shaft Rates with Seed Rate Reduction

Drive Type	Native Grass Driven Sprocket (with Rate Reduction Kit)									
	14T	15T	16T	17T	18T	19T	20T	21T	22T	23T
	Native Grass Cup Revolutions Per Hectare									
1	134	125	118	111	105	99.1	94.1	89.6	85.5	81.8
2	276	258	242	228	215	204	193	184	176	168
3	415	387	363	341	322	305	290	276	264	252
4	676	631	592	557	526	498	473	451	430	412

32343D



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Brome Seed Rates, Metric

For instructions, see page 22.

For charts in U.S. customary units, see page 24.

Metric Standard Brome Rates

Metric Drive Type	Native Grass Driven Sprocket (Standard Rate)									
	15	16	17	18	19	20	21	22	23	24
	Brome Grass Seeding Rate in Kilograms per Hectare									
1	9.6	9.1	8.5	8.1	7.6	7.2	6.8	6.6	6.3	6.1
2	19.8	18.5	17.5	16.5	15.6	14.8	14.1	13.5	12.9	12.3
3	29.7	27.8	26.2	24.8	23.4	22.3	21.2	20.3	19.4	18.5
4	48.4	45.4	42.7	40.4	38.2	36.3	34.5	33.0	31.6	30.3

32336C

Metric Reduced Brome Rates

Metric Drive Type	Native Grass Driven Sprocket (with Rate Reduction Kit)									
	15	16	17	18	19	20	21	22	23	24
	Brome Grass Seeding Rate in Kilograms per Hectare									
1	5.6	5.3	4.9	4.7	4.4	4.2	4.0	3.8	3.6	3.5
2	11.5	10.7	10.1	9.5	9.0	8.6	8.2	7.8	7.5	7.1
3	17.2	16.1	15.2	14.4	13.6	12.9	12.3	11.8	11.2	10.7
4	28.1	26.3	24.7	23.4	22.2	21.0	20.0	19.1	18.3	17.5

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