



OPERATING THE DRILL

TABLE OF CONTENTS

CALIBRATION

Calibration Notes.....	Page 30-1 thru 30-2
Methods of Calibration.....	Page 30-2
Calibration Procedure.....	Page 30-3
Small Box - Bulk Pounds Method.....	Page 30-4
Small Box Seeding Rates.....	Page 30-5
Measuring Amount of Exposed Shutoff For Reference To Output (Small Box).....	Page 30-6
Fluffy Box - Bulk Pounds Method.....	Page 30-7 thru 30-8
Cool Season/Grain Box - Bulk Pounds Method.....	Page 30-9
Cool Season/Grain Box Seeding Chart.....	Page 90-9 thru 90-10
Measuring Amount of Exposed Shutoff For Reference To Output (CS Box).....	Page 30-11
Cool Season/Grain Box - Seed Cup.....	Page 30-12
Jumbo/Grain Box - Bulk Pounds Method.....	Page 30-13 thru 30-18
Calibration Procedure (Seeds Per Row Foot).....	Page 30-19
Calibration Procedure (Sample Bag Per Land Area).....	Page 30-19
Seed Mixes Information.....	Page 30-20 thru 30-29

SEED DELIVERY & PASSAGEWAY

Seed Passageway.....	Page 30-30
Operating Speed.....	Page 30-30
Drill Seeding Capacity.....	Page 30-30
Seed Placement & Opener Depth.....	Page 30-31 thru 30-32
Seed Fillers/Extenders	Page 30-32
Wildflower.....	Page 30-32

ACRE METER

Digital Acre Meter.....	Page 30-32 thru 30-34
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OPERATING THE DRILL

CALIBRATION

For your convenience, we have provided seeding charts for various types of seeds in all 3 boxes. **Please note that these are in bulk lbs. per acre**

NOTE: % PLS stands for Percentage of Pure Live Seed.

In all charts, the numbers represent **bulk lbs. per acre**. In each cell there are two numbers. The left represents the low output 54 tooth sprocket on the clutch and the right represents the high output 30 tooth clutch sprocket. For specialty seed mixes, the seed company is listed next to the seed mix in the charts. The contents of the mix are listed on pages 30-20 thru 30-29.

DO NOT BACK UP DRILL WITH PLANTERS & NO-TILLS IN PLANTING POSITION!

ALWAYS RAISE PLANTERS WHEN TURNING SHARPER THAN 90 DEG. CORNERS OR IF SOD SEEDING.

1) CALIBRATION NOTES

1) Truax OTG drills have been designed to operate using all three boxes (small, fluffy, and cool season / grain) simultaneously or in any combination desired.

2) To avoid errors during calibration, calibrate each seed box individually. Changing the output of one box does not affect the other boxes.***

3) When turning the **calibration nut** with the planters in planting position, the mechanisms in all three seed boxes will operate at the same time.

***Changing the clutch sprocket from low output (54 tooth) to high output (30 tooth) will affect the output of all three boxes.

4) Unlike the small & cool season boxes, the fluffy seed box picker wheel is not adjustable by a shifter mechanism. It would be wise to calibrate the fluffy seed box last.

5) All Truax OTG drills can be calibrated using the **calibration nut** procedure.

6) Lower the planters to the ground prior to starting the calibration procedure.

7) Disengage the lockout pin prior to starting the calibration procedure.

8) Several factors will affect the seeding rate. These include humidity, seed density, seed purity (inert matter in seed lot), seed germination, mixing of seed types, seed box used, site conditions, and speed of travel.



The procedure provided for the calibration of Truax drills is to be used as a guide only - several factors could affect the rate at which the seed will flow through the seedway passages.

The operator of the equipment must constantly monitor the seed delivery and placement!



OPERATING THE DRILL

CALIBRATION

9) Seeding Rate Variables:

1. Different bags of seed weighing the same amount may contain different amounts of pure live seed, due to seed germination, seed purity, inert material, unfilled kernels, moisture content, or seed size.
2. The drill wheels may slip due to seedbed condition, soil type, lay of the land, and speed of drilling.
3. The tire size, type, pressure, and tire wear will affect the seeding rates. Note: The standard tire is a 255/70R22.5 140/137M Regroovable **(CAUTION: RECOMMENDED TIRE PRESSURE IS 80 PSI.**
4. Leaving a gap wider than the 7.5" between drill passes, overlapping drill passes, and failure to fully stop and lift the drill when turning at the end of the field will affect uniform distribution.
5. The operator may have false information as to the land area.

IMPORTANT: Remember that the feed cups meter volume, not weight!

10) When planting large seeds (such as corn or beans), move the clean-out level (left side of cup) to the middle setting to prevent crushing or chipping of the seed, which could result in an irregular seeding rate.

11) We do not recommend the application of fertilizer with Truax OTG drills.



The rates shown in the charts are only to be used as a guide. Refer to the Calibration procedure for more detail.

The charts are based on original equipment sprockets. Changing sprockets will affect the drill output.

The charts are based on the drill using 255/70R22.5 tires.

Some seeds, such as soybeans and wheatgrass vary widely in size. For such seed types, the number of seeds planted per acre will vary according to the size of the seed.

1A) Methods of Calibration:

1. Bulk Pounds Method
 - Weight/Acre in Grams
 - Weight/Acre in Ounces
 - Weight/Acre in Pounds
2. Sample Bag/Land Area
3. Seed Per Row Foot



OPERATING THE DRILL

CALIBRATION

2) CALIBRATION PROCEDURE: BULK POUNDS METHOD

- Weight/Acre in Grams
- Weight/Acre in Ounces
- Weight/Acre in Pounds

Attach the drill to a tractor or other vehicle, park on a level surface, set parking brake, lower the planters to planting position and then shut off the tractor. Drills can't be calibrated in transport position because the clutch is disengaged.

- 1.) Fill only the 4 rows closest to the **calibration nut**. Fill box half full.
- 2.) Remove seed hoses from the seed transitions of the selected 4 rows.
- 3.) Engage the **calibration nut** by pressing in with the handle while turning clockwise.
- 4.) Set the seed box shifter handles or derailleur sprocket of the fluffy seed box at the desired starting point and turn the **calibration nut** over 2 rotations. This allows the seed to fill all open gaps within the seed flute or picker wheel.
- 5.) Place pre-weighed containers under the seed transitions.
- 6.) Grams - Turn **calibration nut** 3.0 times clockwise and catch seed from the 4 rows
Ounces - Turn **calibration nut** 6.0 times clockwise and catch seed from the 4 rows
Pounds - Turn **calibration nut** 12.0 times clockwise and catch seed from the 4 rows
- 7.) Combine the seed weight in grams, ounces, or pounds.
- 8.) Grams - For the low output - 54 tooth clutch sprocket multiply your amount by 0.496
For the high output - 30 tooth clutch sprocket multiply your amount by 0.893
The result is the bulk seeding rate in lbs. per acre.
Ounces - For the low output - 54 tooth clutch sprocket multiply your amount by 7.04
For the high output - 30 tooth clutch sprocket multiply your amount by 12.66
The result is the bulk seeding rate in lbs. per acre.
Pounds - For the low output - 54 tooth clutch sprocket multiply your amount by 56.27
For the high output - 30 tooth clutch sprocket multiply your amount by 405.12
The result is the bulk seeding rate in lbs. per acre.
- 9.) To get pure live seeding rate (PLS), multiply bulk amount by PLS percentage shown on the seed tag.



OPERATING THE DRILL

CALIBRATION

3) SMALL BOX - BULK POUNDS METHOD (see page 30-3)

- Weight/Acre in Grams
- Weight/Acre in Ounces
- Weight/Acre in Pounds

The small box, located in the front of the drill is used for seeding small seeds. The shifter lever on the right end of the seed box (when viewed from the rear) controls how much of the seed flute is open or closed for seed to travel through. The two clutch sprocket options control how fast the flute is rotating over a given distance traveled by the drill. Carefully control the exposed flute so that no seeds are crushed or ground. When very low seeding rates are required from the small box, use the low output - 54 tooth clutch sprocket with more area of the flute open on the seed box, rather than using the high output - 30 tooth clutch sprocket with very little area of the flute open on the seed box. In addition, extremely low output rates can be achieved by changing the sprocket on the small seed box shaft.

The small box shifter level mount has the numbers 0, 2, 4, 6, 8, and 10 on it to help reference your output rate. Zero indicates that none of the seed flute is exposed in the seed cup, meaning no seed will travel through. Ten indicates that the seed flute is completely exposed in the seed cup and this is the highest output of seed. Since the small seed box shifter level can be moved and locked in at any setting at or between 0 and 10, then virtually any bulk seed rate from 0 lbs per acre to the maximum indicated in the chart can be achieved.



OPERATING THE DRILL

CALIBRATION

4) SMALL BOX SEEDING RATES

The following chart is for the small seed box seeding rates in **bulk pounds per acre**. In each cell there are two numbers. The **left number represents the low output 54 tooth clutch sprocket** and the **right number represents the high output 30 tooth clutch sprocket**.

Output in bulk pounds per acre: **NOT IN POUNDS PLS.**

All tables to be used as a guide to output. **CAUTION:** The output rates are variable depending on individual conditions!

	54 Tooth Sprocket/30 Tooth Sprocket				
Small Box Shifter Number	2	4	6	8	10
Alfalfa	4.4 / 7.9	8.1 / 14.6	12.4 / 22.3	17.2 / 30.9	21.3 / 38.3
Blackeyed Susan	2.4 / 4.4	5.2 / 9.3	7.4 / 13.2	9.5 / 16.7	12.2 / 21.7
Deer Tongue Grass	2.9 / 5.2	5.5 / 9.9	8.1 / 14.3	10.9 / 19.1	13.1 / 23.3
Fall Panicum	1.9 / 3.3	4.3 / 7.8	6.2 / 10.8	8.0 / 14.2	10.4 / 18.6
Illinois Bundle Flower	4.5 / 8.1	10.4 / 19.6	16.6 / 29.8	23.5 / 41.7	30.7 / 54.3
Millet	4.1 / 7.31	8.2 / 14.7	14.6 / 26.3	19.5 / 35.1	27.5 / 49.5
Partridge Pea	5.3 / 9.3	10.4 / 18.2	16.1 / 28.5	20.8 / 37.0	26.8 / 47.8
Switchgrass - Alamo	3.0 / 6.3	6.5 / 12.5	9.8 / 17.6	13.1 / 22.8	16.6 / 28.0
Switchgrass - Blackwell	4.4 / 8.5	9.7 / 17.0	14.4 / 25.5	19.2 / 35.9	24.9 / 43.7
Timothy	4.3 / 7.8	6.3 / 11.4	10.7 / 19.3	13.0 / 23.3	16.5 / 29.7
White Clover	3.5 / 6.4	8.0 / 14.5	12.7 / 22.9	17.0 / 30.6	21.6 / 38.8



OPERATING THE DRILL

CALIBRATION

5) MEASURING AMOUNT OF EXPOSED SHUTOFF FOR REFERENCE TO OUTPUT (SMALL BOX)

By using a scale (mm ruler), you can measure the length of exposed shutoff as an alternative reference to confirm the rate of seed flow. If using an inch ruler, convert to mm (1 inch = 25.4mm) to be able to use the chart below.

In order to standardize small box settings, use the following chart to determine what setting your seed box is running at. It would also be wise to make note of what millimeters your seed box is set at in order to adjust your seeding rate for future acres.

Millimeters exposed represents how much of the shut off on the small box shaft, is exposed outside of the seed cup. To make a measurement, place a millimeter ruler flush with the seed cup and measure how far the shut off is exposed.

Small Box Setting	mm Exposed
0	1
2	6
4	11
6	17
8	22
10	28

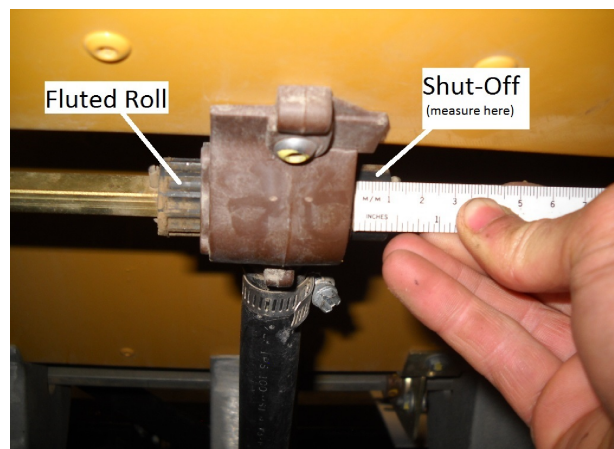


Fig. 30-1

SUGGESTION: Make a record of your settings for your specific machine/mix. Tape inside lid, keep in manual, or create a spreadsheet on your phone/computer.

The shut off is easier to adjust while the seed boxes are empty.



OPERATING THE DRILL

CALIBRATION

6) FLUFFY BOX - BULK POUNDS METHOD (see page 30-3)

- Weight/Acre in Grams
- Weight/Acre in Ounces
- Weight/Acre in Pounds

The fluffy box is located in the middle box of the drill assembly. The output of the fluffy box is adjusted by using the derailleur controls. This control only affects the middle/fluffy seed box. The derailleur consists of 2-five step sprockets and a spring tension idler that takes the slack from the roller chain between the two stepped sprockets. The rear sprocket is the drive, and the sprocket closest to the tongue is the driven one. There are five settings on the cone sprockets. Since the clutch has two outputs (low and high), the fluffy box actually has 10 different settings. The various settings control the rotation of the picker wheel within the seed box. The opening of the fluffy box cannot be altered. The cone sprocket settings are labeled 1 through 5. The lowest output RPM (1) is when the chain is on the furthest right combination of sprockets (when facing the front of the machine). As the chain is moved to different combinations to the left, the picker wheel shaft rotates faster and therefore the output of the fluffy seed box increases.

The following chart is for seeding rates in the fluffy box **WITHOUT** seed gaskets and retainer plates. The numbers listed represent bulk pound per acre. In each cell there are two numbers. The **left number represents the low output 54 tooth clutch sprocket and the right number represents the high output 30 tooth clutch sprocket.**

Output in bulk lbs per acre without seed gaskets and retainer plates: (NOT IN POUNDS PLS)

All tables to be used as a guide to output. CAUTION: The output rates are variable depending on individual conditions!

	54 Toth Sprocket/30 Tooth Sprocket				
Cone Sprocket Setting	1	2	3	4	5
Big Bluestem (Roundstone Seed)	3.5 / 6.9	7.0 / 12.9	12.1 / 21.5	21.1 / 37.5	35.4 / 64.2
Little Bluestem (Sharp Bros Seed)	1.1 / 2.0	2.1 / 3.9	4.0 / 7.0	6.1 / 11.0	12.2 / 20.7
Minnesota CP25 (Millborn Seeds)	6.7 / 11.8	12.2 / 22.3	22.1 / 38.9	37.0 / 64.3	63.1 / 111.0
Minnesota CRP (Millborn Seeds)	5.9 / 10.5	11.5 / 21.4	21.5 / 38.3	36.7 / 64.0	60.8 / 105.9
Prairie 3+ (Stock Seed Farm)	3.1 / 5.6	5.8 / 10.5	9.5 / 17.0	16.7 / 30.0	29.9 / 53.8
Prairie 7 (Stock Seed Farm)	4.5 / 8.0	8.3 / 15.0	14.1 / 25.4	23.9 / 43.1	43.5 / 78.4
Scorched Earth Recovery (Native American Seed)	7.2 / 13.0	13.1 / 23.6	22.7 / 40.8	38.8 / 69.8	70.7 / 127.2
Side Oats Grama (Sharp Bros Seed)	3.0 / 5.3	5.1 / 9.2	8.6 / 15.4	13.8 / 24.8	24.5 / 44.2
Showy NE Wild Flower & Grass Mix (Native American Seed)	7.6 / 13.6	14.9 / 26.9	23.0 / 41.5	35.5 / 63.9	55.1 / 99.2
South Dakota CRP (Millborn Seeds)	7.2 / 13.0	11.9 / 21.4	20.7 / 37.3	36.0 / 64.8	62.3 / 112.2



OPERATING THE DRILL

CALIBRATION

6) FLUFFY BOX - BULK POUNDS METHOD (see page 30-3)

- Weight/Acre in Grams
- Weight/Acre in Ounces
- Weight/Acre in Pounds

Since there is limited variability in the seeding rate in the fluffy box, there is an option to further reduce the output. Adding seed gaskets (part #1005) and retainer plates (part #1006) inside the seed box will reduce output. The percent reduction varies from 10% to 25% depending on the seed species. The following chart is for seeding rates in the middle fluffy box WITH seed gaskets and retainer plates. The numbers listed represent **bulk pound per acre**. In each cell there are two numbers. The **left number represents the low output 54 tooth clutch sprocket** and the **right number represents the high output 30 tooth clutch sprocket**.

Output in bulk lbs per acre with seed gaskets and retainer plates: (NOT IN POUNDS PLS)

All tables to be used as a guide to output. **CAUTION:** The output rates are variable depending on individual conditions!

	54 Tooth Sprocket/30 Tooth Sprocket				
Cone Sprocket Setting	1	2	3	4	5
Big Bluestem (Roundstone Seed)	2.9 / 5.3	5.6 / 10.1	9.5 / 17.0	16.7 / 30.0	29.7 / 53.4
Little Bluestem (Sharp Bros Seed)	0.9 / 1.6	1.8 / 3.2	3.4 / 6.1	5.2 / 9.4	10.1 / 18.2
Minnesota CP25 (Millborn Seeds)	5.1 / 9.2	9.6 / 17.3	16.9 / 30.4	27.8 / 50.2	47.2 / 85.0
Minnesota CRP (Millborn Seeds)	5.5 / 9.9	10.0 / 18.0	17.0 / 30.6	29.1 / 52.4	45.4 / 81.8
Prairie 3+ (Stock Seed)	2.3 / 4.2	4.4 / 7.8	7.4 / 13.3	12.7 / 22.9	22.8 / 40.9
Prairie 7 (Stock Seed)	3.6 / 6.5	6.9 / 12.3	11.6 / 20.9	19.6 / 35.3	36.5 / 65.7
Scorched Earth Recovery (Native American Seed)	5.4 / 9.7	9.9 / 17.8	17.6 / 31.7	28.7 / 51.6	57.2 / 103.0
Side Oats Grama (Sharp Bros Seed)	2.0 / 3.6	3.6 / 6.5	6.1 / 10.9	10.2 / 18.3	17.8 / 32.1
Showy NE Wild Flower & Grass Mix (Native American Seed)	6.2 / 11.1	10.4 / 18.8	17.0 / 30.7	27.8 / 49.9	43.2 / 77.8
South Dakota CRP (Millborn Seeds)	5.5 / 9.9	9.3 / 16.7	16.2 / 29.2	27.0 / 48.6	47.3 / 85.2



OPERATING THE DRILL

CALIBRATION

7) COOL SEASON/GRAIN BOX - BULK POUNDS METHOD (See Page 30-3)

- Weight/Acre in Grams
- Weight/Acre in Ounces
- Weight/Acre in Pounds

The 3rd box is the back box of the three box drill set-up. It can also be referred to as the cool season box or the grain box. To control output from this box, there is a shifter handle located in the rear of the drill between rows 3 and 4. Similar to the small box, moving this shifter left and right changes how much of the fluted roll is exposed inside the seed cup which will determine how much seed exits the box while the drill is operating. The two clutch sprocket options control how fast the flute is rotating over a given distance traveled by the drill. Carefully control the exposed flute so that no seeds are crushed or ground. When very low seeding rates are required from the 3rd box, use the low output - 54 tooth clutch sprocket with more area of the flute open on the seed box, rather than using the high output - 30 tooth clutch sprocket with very little area of the flute exposed inside the seed cup.

The shifter lever mount has the numbers 0, 2, 4, 6, 8, 10, 12, 14, and 16 indicated. Zero represents none of the fluted roll exposed in the cup so there will be no seed flow at that setting. Sixteen represents all the fluted roll is exposed in the cup which will output the maximum amount.

8) COOL SEASON/GRAIN BOX SEEDING CHART (on following page, 30-10)

The following is a chart for seeding rates in the 3rd box in **bulk pounds per acre**. In each cell the **left number is the low output 54 tooth clutch sprocket and the right number is the high output 30 tooth clutch sprocket**.



OPERATING THE DRILL

CALIBRATION

Output in bulk lbs per acre! (NOT IN POUNDS PLS)

All tables to be used as a guide to output. CAUTION: The output rates are variable depending on individual conditions!

	54 Tooth Sprocket/30 Tooth Sprocket			
3rd Box Shifter Number	4	8	12	16
Annual Wild Flower Mix (Ernst Seeds)	12.6 / 22.7	8.4 / 45.5	38.8 / 69.8	49.0 / 88.2
Brome Grass	5.7 / 10.3	11.6 / 20.9	19.4 / 34.9	25.1 / 45.2
Big Bluestem (Sharp Bros Seed)	5.2 / 9.4	12.2 / 22.0	19.4 / 34.9	24.0 / 43.2
Canadian Wild Rye	3.8 / 6.8	8.5 / 15.3	13.9 / 25.0	18.7 / 33.7
Dryland Aggressive Mix 1 (Pawnee Buttes Seed)	5.2 / 9.4	13.5 / 24.3	20.0 / 36.0	25.5 / 45.9
Economy CRP Mix (Osenbaugh Seeds)	4.2 / 7.6	8.8 / 15.8	14.8 / 26.6	17.4 / 31.3
Eastern Gama Grass	16.1 / 29.0	35.2 / 63.4	62.0 / 111.6	74.6 / 134.3
Indian Grass	5.5 / 9.9	12.7 / 22.9	20.2 / 36.4	25.0 / 45.0
Native Prairie Mix (Pawnee Buttes Seed)	5.7 / 10.3	11.5 / 20.7	18.3 / 32.9	24.6 / 44.3
Orchard Grass	8.3 / 14.9	15.5 / 20.7	24.6 / 44.3	31.6 / 56.9
Prem. Irrig. Pasture Mix 1 (Pawnee Buttes Seed)	7.2 / 13.0	14.7 / 26.5	23.0 / 41.4	28.9 / 52.0
Purple Top	5.2 / 9.4	12.1 / 21.8	18.6 / 33.5	23.6 / 42.5
Riparian Buffer Mix (Ernst Seeds)	4.6 / 8.3	11.1 / 20.0	18.6 / 33.5	22.9 / 41.2
Rye Grass	13.6 / 24.5	24.5 / 44.1	39.1 / 70.4	50.9 / 91.6
Side Oats Grama (Roundstone Seed)	2.0 / 3.6	4.3 / 7.7	6.8 / 12.2	9.1 / 16.4
Virginia Wild Rye (Roundstone Seed)	4.1 / 7.4	9.3 / 16.7	13.9 / 25.0	17.9 / 32.2
Barley, Haybet	25.2 / 45.4	50.3 / 90.5	87.1 / 156.8	112.6 / 202.7
Beardless Triticale	23.9 / 43.0	65.4 / 117.7	112.8 / 203.0	143.3 / 257.9
Buck Wheat	22.5 / 40.5	46.3 / 83.3	83.0 / 149.4	103.8 / 186.8
Flax	22.6 / 40.7	50.8 / 91.4	81.9 / 147.4	110.2 / 198.4
Oats, Monida	14.2 / 25.6	41.8 / 75.2	68.8 / 123.8	87.7 / 157.9
Soybeans	25.4 / 45.7	65.3 / 117.5	113.7 / 204.7	148.0 / 266.4
Spring Wheat	29.1 / 52.4	68.3 / 122.9	118.6 / 213.5	149.7 / 269.5
Winter Rye	28.4 / 51.1	63.8 / 114.8	108.0 / 194.4	136.0 / 244.8



OPERATING THE DRILL

CALIBRATION

9) MEASURING AMOUNT OF EXPOSED SHUTOFF FOR REFERENCE TO OUTPUT (CS BOX)

By using a scale (mm ruler), you can measure the length of exposed shutoff as an alternative reference to confirm the rate of seed flow. If using an inch ruler, convert to mm (1 inch = 25.4mm) to be able to use chart below.

In order to standardize cool season box settings, use the following chart to determine what setting your seed box is running at. It would also be wise to make note of what millimeters your seed box is set at in order to adjust your seeding rate for future acres.

Millimeters exposed represents how much of the shut off on the 3rd box shaft is exposed outside of the seed cup. To make a measurement, place a millimeter ruler flush with the seed cup and measure how far the shut off is exposed.

3rd Box Setting	mm Exposed
0	2
4	13
8	25
12	37
16	47

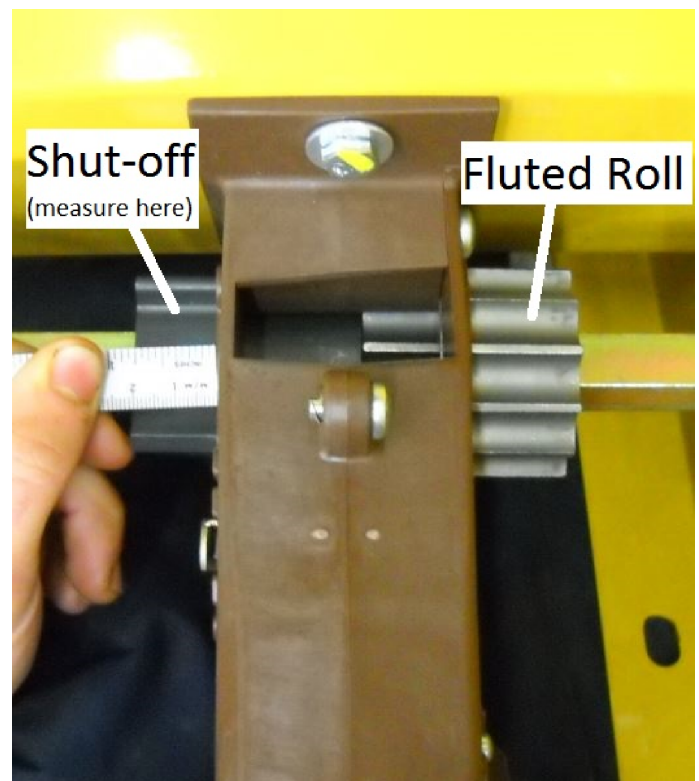


Fig. 30-2

SUGGESTION: Make a record of your settings for your specific machine/mix. Tape onto inside lid, keep in manual, or create spreadsheet in phone/computer.

The shut off is easier to adjust while the seed boxes are empty.



OPERATING THE DRILL

CALIBRATION

10) COOL SEASON/GRAIN BOX - SEED CUP

The 3rd box seed cups also have an adjustment lever located on the left side of the cup (when standing behind the drill). This will regulate the distance the fluted roll is from the gate inside the seed cup. Adjust this lever accordingly to accommodate your seed structure. If the seed size is large or contains large debris, then lower this lever so the seed is not constricted with the fluted roll when trying to exit the seed box and cup.



Fig. 30-3

- 1) Clean the seed cups by opening the feed gate all the way. This is accomplished by moving lever (A) down all the way.
- 2) Set the lever (A) into one of the following positions:
 - B - Wheat, oats, barley, rye, flax, rice, and similar seeds.
 - C - Small peas and common beans.
 - D - Large peas, soybeans, kidney beans, corn, and lima beans.
 - E - Clean out
- 3) Make sure all the seed cups are set the same to prevent uneven output rates.

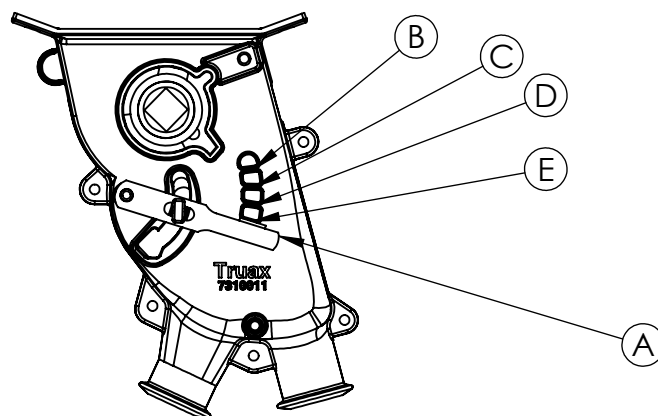


Fig. 30-4



OPERATING THE DRILL

CALIBRATION

11) JUMBO/GRAIN BOX - BULK POUNDS METHOD (See page 30-3)

- Weight/Acre in Grams
- Weight/Acre in Ounces
- Weight/Acre in Pounds

FOR TABLES ON PAGES 30-14 THRU 30-18:

The Truax OTG 2 box grain drills can use the same small box charts that are used to the grass drills. When calibrating the large capacity/jumbo grain box there is an added variable because the output can be in part controlled by the derailleur cone sprocket. Use the following charts to determine the output for differing derailleur cone sprocket settings. Setting number 1 is the lowest output (far right sprockets) and setting number 5 is the highest output (far left sprockets). In each cell there are two numbers which represent **bulk pounds per acre**. **The left number is the low output 54 tooth clutch sprocket and the right number is the high output 30 tooth clutch sprocket.**

For manual/illustration purposes, the calibration was performed using the third box shifter settings of 4, 8, 12, 16. Other settings can be used.

OUTPUT IN BULK POUNDS PER ACRE: NOT IN POUNDS PLS!

ALL TABLES USED AS A GUIDE TO OUTPUT. CAUTION: THE OUTPUT RATES ARE VARIABLE DEPENDING ON THE INDIVIDUAL CONDITIONS!



OPERATING THE DRILL

CALIBRATION

Cone Sprocket Setting: 1

(SEE PAGE 30-13)

(LARGE CAPACITY/JUMBO GRAIN BOX)

	54 Tooth Sprocket/30 Tooth Sprocket			
3rd Box Shifter Number	4	8	12	16
Annual Wild Flower Mix (Ernst Seeds)	4.0 / 7.3	8.1 / 14.6	12.4 / 22.3	15.7 / 28.2
Brome Grass	1.8 / 3.3	3.7 / 6.7	6.2 / 11.2	8.0 / 14.5
Big Bluestem (Sharp Bros Seed)	1.7 / 3.0	3.9 / 7.0	6.2 / 11.2	7.7 / 13.8
Canadian Wild Rye	1.2 / 2.2	2.7 / 4.9	4.4 / 8.0	6.0 / 10.8
Dryland Aggressive Mix 1 (Pawnee Buttes Seed)	1.7 / 3.0	4.3 / 7.8	7.8 6.4 / 11.5	8.2 / 4.7
Economy CRP Mix (Osenbaugh Seeds)	1.3 / 2.4	2.8 / 5.1	4.7 / 8.5	5.6 / 10.0
Eastern Gama Grass	5.2 / 9.3	11.3 / 20.3	19.8 / 35.7	23.9 / 43.0
Indian Grass	1.8 / 3.2	4.1 / 7.3	6.5 / 11.6	8.0 / 14.4
Native Prairie Mix (Pawnee Buttes Seed)	1.8 / 3.3	3.7 / 6.6	5.9 / 10.5	7.9 / 14.2
Orchard Grass	2.7 / 4.8	5.0 / 8.9	7.9 / 14.2	10.1 / 18.2
Prem. Irrig. Pasture Mix 1 (Pawnee Buttes Seed)	2.3 / 4.1	4.7 / 8.5	7.4 / 13.2	9.2 / 16.6
Purple Top	1.7 / 3.0	3.9 / 7.0	6.0 / 10.7	7.6 / 13.6
Riparian Buffer Mix (Ernst Seeds)	1.5 / 2.6	3.6 / 6.4	6.0 / 10.7	7.3 / 13.2
Rye Grass	4.4 / 7.8	7.8 / 14.1	12.5 / 22.5	16.3 / 29.3
Side Oats Grama (Roundstone Seed)	0.6 / 1.2	1.4 / 2.5	2.2 / 3.9	2.9 / 5.2
Virginia Wild Rye (Roundstone Seed)	1.3 / 2.4	3.0 / 5.4	4.4 / 8.0	5.7 / 10.3
Barley, Haybet	8.1 / 14.5	16.1 / 29.0	27.9 / 50.2	36.0 / 64.9
Beardless Triticale	7.6 / 13.8	20.9 / 37.7	36.1 / 65.0	45.9 / 82.5
Buck Wheat	7.2 / 13.0	14.8 / 26.7	26.6 / 47.8	33.2 / 59.8
Flax	7.2 / 13.0	16.3 / 29.3	26.2 / 47.2	35.3 / 63.5
Oats, Monida	4.5 / 8.2	13.4 / 24.1	22.0 / 39.6	28.1 / 50.5
Soybeans	8.1 / 14.6	20.9 / 37.6	36.4 / 65.5	47.4 / 85.2
Spring Wheat	9.3 / 16.8	21.9 / 39.3	38.0 / 68.3	47.9 / 86.2
Winter Rye	9.1 / 16.4	20.4 / 36.7	34.6 / 62.2	43.5 / 78.3



OPERATING THE DRILL

CALIBRATION

Cone Sprocket Setting: 2

(SEE PAGE 30-13)

(LARGE CAPACITY/JUMBO GRAIN BOX)

	54 Tooth Sprocket/30 Tooth Sprocket			
3rd Box Shifter Number	4	8	12	16
Annual Wild Flower Mix (Ernst Seeds)	7.4 / 13.4	14.9 / 26.9	22.9 / 41.3	29.0 / 52.1
Brome Grass	3.4 / 6.1	6.9 / 12.3	11.5 / 20.6	14.8 / 26.7
Big Bluestem (Sharp Bros Seed)	3.1 / 5.5	7.2 / 13.0	11.5 / 20.6	14.2 / 25.5
Canadian Wild Rye	2.2 / 4.0	5.0 / 9.0	8.2 / 14.8	11.0 / 19.9
Dryland Aggressive Mix 1 (Pawnee Buttes Seed)	3.1 / 5.5	8.0 / 14.4	11.8 / 21.3	15.1 / 27.1
Economy CRP Mix (Osenbaugh Seeds)	2.5 / 4.5	5.2 / 9.4	8.7 / 5.7	10.3 / 18.5
Eastern Gama Grass	9.5 / 17.1	20.8 / 37.4	36.6 / 65.9	44.1 / 79.3
Indian Grass	3.2 / 5.8	7.5 / 13.5	11.9 / 21.5	14.8 / 26.6
Native Prairie Mix (Pawnee Buttes Seed)	3.4 / 6.1	6.8 / 12.2	10.8 / 19.5	14.5 / 26.2
Orchard Grass	4.9 / 8.8	9.2 / 16.5	14.5 / 26.2	18.7 / 33.6
Prem. Irrig. Pasture Mix 1 (Pawnee Buttes Seed)	4.3 / 7.7	8.7 / 15.6	13.6 / 24.5	17.1 / 30.7
Purple Top	3.1 / 5.5	7.1 / 12.9	11.0 / 19.8	13.9 / 25.1
Riparian Buffer Mix (Ernst Seeds)	2.7 / 4.9	6.6 / 11.8	11.0 / 19.8	13.5 / 24.4
Rye Grass	8.0 / 14.5	14.5 / 26.1	23.1 / 41.6	30.1 / 54.1
Side Oats Grama (Roundstone Seed)	1.2 / 2.1	2.5 / 4.6	4.0 / 7.2	5.4 / 9.7
Virginia Wild Rye (Roundstone Seed)	2.4 / 4.4	5.5 / 9.9	8.2 / 14.8	10.6 / 19.0
Barley, Haybet	14.9 / 26.8	29.7 / 53.5	51.5 / 92.6	66.5 / 119.8
Beardless Triticale	14.1 / 25.4	38.6 / 69.6	66.7 / 120.0	84.7 / 152.4
Buck Wheat	13.3 / 23.9	27.4 / 49.2	49.0 / 88.3	61.3 / 110.4
Flax	13.4 / 24.0	30.0 / 54.0	48.4 / 87.1	65.1 / 117.2
Oats, Monida	8.4 / 15.1	24.7 / 44.5	40.7 / 73.2	51.8 / 93.3
Soybeans	15.1 / 27.0	38.6 / 69.5	67.2 / 120.9	87.5 / 157.4
Spring Wheat	17.2 / 31.0	40.4 / 72.6	70.1 / 126.1	88.5 / 159.2
Winter Rye	16.8 / 30.2	37.7 / 67.9	63.8 / 114.9	80.4 / 144.7



OPERATING THE DRILL

CALIBRATION

Cone Sprocket Setting: 3

(SEE PAGE 30-13)

(LARGE CAPACITY/JUMBO GRAIN BOX)

	54 Tooth Sprocket/30 Tooth Sprocket			
3rd Box Shifter Number	4	8	12	16
Annual Wild Flower Mix (Ernst Seeds)	12.6 / 22.7	25.3 / 45.5	38.8 / 69.8	49.0 / 88.2
Brome Grass	5.7 / 10.3	11.6 / 20.9	19.4 / 34.9	25.1 / 45.2
Big Bluestem (Sharp Bros Seed)	5.2 / 9.4	12.2 / 22.0	19.4 / 34.9	24.0 / 43.2
Canadian Wild Rye	3.8 / 6.8	8.5 / 15.3	13.9 / 25.0	18.7 / 33.7
Dryland Aggressive Mix 1 (Pawnee Buttes Seed)	5.2 / 9.4	13.5 / 24.3	20.0 / 36.0	25.5 / 45.9
Economy CRP Mix (Osenbaugh Seeds)	4.2 / 7.6	8.8 / 15.8	14.8 / 26.6	17.4 / 31.3
Eastern Gama Grass	16.1 / 29.0	35.2 / 63.4	62.0 / 111.6	74.6 / 134.3
Indian Grass	5.5 / 9.9	12.7 / 22.9	20.2 / 36.4	25.0 / 45.0
Native Prairie Mix (Pawnee Buttes Seed)	5.7 / 10.3	11.5 / 20.7	18.3 / 32.9	24.6 / 44.3
Orchard Grass	8.3 / 14.9	15.5 / 27.9	24.6 / 44.3	31.6 / 56.9
Prem. Irrig. Pasture Mix 1 (Pawnee Buttes Seed)	7.2 / 13.0	14.7 / 26.5	23.0 / 41.4	28.9 / 52.0
Purple Top	5.2 / 9.4	12.1 / 21.8	18.6 / 33.5	23.6 / 42.5
Riparian Buffer Mix (Ernst Seeds)	4.6 / 8.3	11.1 / 20.8	18.6 / 33.5	22.9 / 41.2
Rye Grass	13.6 / 24	24.5 / 44.1	39.1 / 70.4	50.9 / 91.6
Side Oats Grama (Roundstone Seed)	2.0 / 3.6	4.3 / 7.7	6.8 / 12.2	9.1 / 16.4
Virginia Wild Rye (Roundstone Seed)	4.1 / 7.4	9.3 / 16.7	13.9 / 25.0	17.9 / 32.2
Barley, Haybet	25.2 / 45.4	50.3 / 90.5	87.1 / 156.8	112.6 / 202.7
Beardless Triticale	23.9 / 43.0	65.4 / 117.7	112.8 / 203.0	143.3 / 257.9
Buck Wheat	22.5 / 40.5	46.3 / 83.3	83.0 / 149.4	103.8 / 186.8
Flax	22.6 / 40.7	50.8 / 91.4	81.9 / 147.4	110.2 / 198.4
Oats, Monida	14.2 / 25.6	41.8 / 75.2	68.8 / 123.8	87.7 / 157.9
Soybeans	25.4 / 45.7	65.3 / 117.5	113.7 / 204.7	148.0 / 266.4
Spring Wheat	29.1 / 52.4	68.3 / 122.9	118.6 / 213.5	149.7 / 269.5
Winter Rye	28.4 / 51.1	63.8 / 114.8	108.0 / 194.4	136.0 / 244.8



OPERATING THE DRILL

CALIBRATION

Cone Sprocket Setting: 4

(SEE PAGE 30-13)

(LARGE CAPACITY/JUMBO GRAIN BOX)

	54 Tooth Sprocket/30 Tooth Sprocket			
3rd Box Shifter Number	4	8	12	16
Annual Wild Flower Mix (Ernst Seeds)	21.3 / 38.4	42.8 / 77.1	65.7 / 118.2	82.9 / 149.3
Brome Grass	9.6 / 17.4	19.6 / 35.3	32.8 / 59.1	42.5 / 76.5
Big Bluestem (Sharp Bros Seed)	8.8 / 15.8	20.6 / 37.2	32.8 / 59.1	40.6 / 73.1
Canadian Wild Rye	6.4 / 11.6	14.4 / 25.9	23.5 / 42.3	31.6 / 57.0
Dryland Aggressive Mix 1 (Pawnee Buttes Seed)	8.8 / 15.8	22.8 / 41.1	33.8 / 60.9	43.2 / 77.7
Economy CRP Mix (Osenbaugh Seeds)	7.1 / 12.8	14.9 / 26.8	25.0 / 45.1	29.4 / 53.0
Eastern Gama Grass	27.2 / 49.0	59.6 / 107.2	104.9 / 188.9	126.2 / 227.2
Indian Grass	9.3 / 16.8	21.5 / 38.7	34.2 / 61.5	42.3 / 76.2
Native Prairie Mix (Pawnee Buttes Seed)	9.6 / 17.4	19.5 / 35.0	31.0 / 55.7	41.6 / 74.9
Orchard Grass	14.0 / 25.3	26.2 / 47.2	41.6 / 74.9	53.5 / 96.3
Prem. Irrig. Pasture Mix 1 (Pawnee Buttes Seed)	12.2 / 21.9	24.9 / 44.8	38.9 / 70.1	48.9 / 88.0
Purple Top	8.8 / 15.8	20.5 / 36.9	31.5 / 56.7	39.9 / 71.9
Riparian Buffer Mix (Ernst Seeds)	7.8 / 14.0	18.8 / 33.8	31.5 / 56.7	38.8 / 69.8
Rye Grass	23.0 / 41.4	41.5 / 74.6	66.2 / 119.1	86.1 / 155.0
Side Oats Grama (Roundstone Seed)	3.4 / 6.1	7.3 / 13.1	11.5 / 20.7	15.4 / 27.7
Virginia Wild Rye (Roundstone Seed)	6.9 / 12.5	15.7 / 28.3	23.5 / 42.3	30.3 / 54.5
Barley, Haybet	42.6 / 76.8	85.1 / 153.2	147.4 / 265.3	190.6 / 343.0
Beardless Triticale	40.4 / 72.8	110.7 / 199.2	190.9 / 343.6	242.5 / 436.5
Buck Wheat	38.1 / 68.5	78.4 / 141.0	140.5 / 252.8	175.7 / 316.2
Flax	38.2 / 68.8	86.0 / 154.7	138.6 / 249.5	186.5 / 335.7
Oats, Monida	24.0 / 43.3	70.7 / 127.3	116.4 / 209.6	148.4 / 267.1
Soybeans	43.0 / 77.4	110.5 / 198.9	192.4 / 346.3	250.5 / 450.8
Spring Wheat	49.2 / 88.6	115.6 / 208.1	200.7 / 361.3	253.3 / 456.0
Winter Rye	48.1 / 86.5	108.0 / 194.3	182.8 / 329.0	230.2 / 414.3



OPERATING THE DRILL

CALIBRATION

Cone Sprocket Setting: 5

(SEE PAGE 30-13)

(LARGE CAPACITY/JUMBO GRAIN BOX)

	54 Tooth Sprocket/30 Tooth Sprocket			
3rd Box Shifter Number	4	8	12	16
Annual Wild Flower Mix (Ernst Seeds)	39.4 / 70.9	79.1 / 142.3	121.3 / 218.3	153.1 / 275.6
Brome Grass	17.8 / 32.1	36.3 / 65.3	60.6 / 109.1	78.4 / 141.2
Big Bluestem (Sharp Bros Seed)	16.3 / 29.3	38.1 / 68.6	60.6 / 109.1	75.0 / 135.0
Canadian Wild Rye	11.9 / 21.4	26.6 / 47.8	43.4 / 78.2	58.4 / 105.2
Dryland Aggressive Mix 1 (Pawnee Buttes Seed)	16.3 / 29.3	42.2 / 75.9	62.5 / 112.5	79.7 / 143.4
Economy CRP Mix (Osenbaugh Seeds)	13.1 / 23.6	27.5 / 49.5	46.3 / 83.3	54.4 / 97.9
Eastern Gama Grass	50.3 / 90.6	110.0 / 198.0	193.8 / 348.8	233.1 / 419.6
Indian Grass	17.2 / 30.9	39.7 / 71.4	63.1 / 113.6	78.1 / 140.6
Native Prairie Mix (Pawnee Buttes Seed)	17.8 / 32.1	35.9 / 64.7	57.2 / 102.9	46.9 / 138.4
Orchard Grass	25.9 / 46.7	48.4 / 87.2	76.9 / 138.4	98.8 / 177.8
Prem. Irrig. Pasture Mix 1 (Pawnee Buttes Seed)	22.5 / 40.5	45.9 / 82.7	71.9 / 129.4	90.3 / 162.6
Purple Top	16.3 / 29.3	37.8 / 68.1	58.1 / 104.6	73.8 / 132.8
Riparian Buffer Mix (Ernst Seeds)	14.4 / 25.9	34.7 / 62.4	58.1 / 104.6	71.6 / 128.8
Rye Grass	42.5 / 76.5	76.6 / 137.8	122.2 / 219.9	159.1 / 286.3
Side Oats Grama (Roundstone Seed)	6.3 / 11.3	13.4 / 24.2	21.3 / 38.3	28.4 / 51.2
Virginia Wild Rye (Roundstone Seed)	12.8 / 23.1	29.1 / 52.3	43.4 / 78.2	55.9 / 100.7
Barley, Haybet	78.8 / 141.8	157.2 / 282.9	272.2 / 489.9	351.9 / 633.4
Beardless Triticale	74.7 / 134.4	204.4 / 367.9	352.5 / 634.5	447.8 / 806.1
Buck Wheat	70.3 / 126.6	144.7 / 260.4	259.4 / 466.9	324.4 / 589.9
Flax	70.6 / 127.1	158.8 / 285.8	255.9 / 460.7	344.4 / 619.9
Oats, Monida	44.4 / 79.9	130.6 / 235.1	215.0 / 387.0	274.1 / 493.3
Soybeans	79.4 / 142.9	204.1 / 367.3	688.3 / 639.6	462.5 / 832.5
Spring Wheat	90.9 / 163.7	213.4 / 384.2	370.6 / 667.1	467.8 / 842.1
Winter Rye	88.8 / 159.8	199.4 / 358.9	337.5 / 607.5	425.0 / 765.0



OPERATING THE DRILL

CALIBRATION

12) CALIBRATION PROCEDURE (SEED PER ROW FOOT)

To calculate the number of seeds per row foot/pound of a specified crop, use the following formula:

When:

1 acre = 43,560 square feet

A = number of seeds per pound

B = number of seeds per square foot/pound per acre

C = planting width of drill **(USE ACTUAL WIDTH OF DRILL YOU ARE CALIBRATING)**

D = number of seeds per one (1) row foot per pound

E = number of rows planted by drill

$$A/43,560 = B$$

$$(C/E) \times B = D$$

For Example: Using big bluestem, which has 165,000 seeds per pound and a OTG-7512 Drill, which has a 7.5 foot planting width and plants twelve (12) rows.

A = 165,000 seeds per pound

C = 7.5 feet **(EXAMPLE)**

E = 12 drill openers or rows

B = $165,000/43,560 = 3.8$ seeds per square foot

D = $(7.5 \text{ ft}/12) \times 3.8 = 2.5$ seeds per one (1) row foot/pound

This figure is actual or bulk seeds per row foot/pound. When planting Pure Live Seed (PLS), divide "D" by the PLS percent of your seed lot.

For Example: Your seed lot of big bluestem has a PLS percent of 60% (0.60).

$$2.5/0.60 = 4.2 \text{ actual or bulk seeds per row foot/pound}$$

This figure represents one PLS pound of seed. Multiply by the desired planting rate per acre to obtain the correct number of seeds per foot of row.

For Example: Your desired planting rate for big bluestem is 8 PLS pounds per acre.

$4.2 \times 8 = 33.6$ actual or bulk seeds per row foot for an eight (8) PLS pound seeding rate.

In the above example, 34 seeds per row foot would be required to achieve the desired seeding rate.

13) CALIBRATION PROCEDURE (SAMPLE BAG PER LAND AREA)

- 1) Select or measure a known field area (1-2 acres).
- 2) Put the proper quantity of seed (PLS) in the seed boxes and drill the known field area.
- 3) Check periodically while drilling to see if there is enough material to seed the area.
- 4) Adjust the drill to achieve the desired seeding rate.



OPERATING THE DRILL

CALIBRATION

14) SEED MIXES INFORMATION

Annual Wildflower Mix - Ernst Conservation Seeds Inc.

Ernst Conservation Seeds Inc.
8884 Mercer Pike
Meadville, PA 16335

Annual Wildflower Mix		Lot # ERNMX-157-130429
Item	Purity (%)	Germ (%)
Cosmos	9.99	98.0
Sulphur Cosmos	9.99	92.0
Rocket Larkspur	9.99	96.0
Scarlet Flax	9.99	94.0
Cornflower (Bachelors Button)	5.96	87.0
Annual Gaillardia (Indian Blanket)	5.93	82.0
Bachelor's Button Tall Mixed Cornflower	5.91	76.0
Sweetwilliam	5.89	86.0
Common Norlin Flax	5.86	83.0
Wallflower	4.99	
California Orange Poppy	3.99	90.0
Blakeyed Susan	3.99	96.0
Tree Mallow	2.00	70.0
Sweet Alyssum	2.00	90.0
Annual Baby's Breath	1.99	88.0
Catchfly	1.99	95.0
Calendula	1.98	84.0
Bishop's Flower	1.00	78.4
Clarkia	1.00	88.0
Corn Poppy, Red	1.00	86.0
Corn Poppy/Shirley Mix	1.00	90.5
Painted Daisy	0.99	72.0
Spurred Snapdragon (Northern Lights)	0.99	75.0
Plains Coreopsis	0.94	96.0



OPERATING THE DRILL

CALIBRATION

Riparian Buffer Mix - Ernst Conservation Seeds Inc.

Ernst Conservation Seeds Inc.
8884 Mercer Pike
Meadville, PA 16335

Riparian Buffer Mix		Lot# ERNMX-178-140311	
Item	Purity (%)	Germ (%)	
Virgina Wildrye, PA Ecotype	19.65	94.0	
Indiangrass, PA Ecotype	14.20	16.0	
Big Bluestem, 'Niagara'	13.41	22.0	
Deertongue, 'Tioga'	9.86	3.0	
Switchgrass, 'Carthage' NC Ecotype	8.98	44.0	
Partridge Pea, PA Ecotype	5.99	50.0	
Blue Vervain, PA Ecotype	4.00	93.0	
Autum Bentgrass, PA Ecotype	3.96	90.0	
Blackeyed Susan, Coastal Plan NC Ecotype	3.00	95.5	
Oxeye Sunflower, PA Ecotype	2.99	95.0	
Soft Rush	2.00	1.0	
Giant Ironweed, PA Ecotype	1.81	8.0	
Boneset, Pa Ecotype	1.33	25.0	
Common Sneezeweed, PA Ecotype	1.01	13.0	
Blue False Indigo, Southern WV Ecotype	1.00	90.0	
Joe Pye Weed, PA Ecotype	1.00	21.0	
Great Blue Lobelia, PA Ecotype	0.91	31.0	
Wild Bergamot, PA Ecotype	0.50	42.0	



OPERATING THE DRILL

CALIBRATION

Showy Northeast Native Wildflower & Grass Mix- Ernst Conservation Seeds Inc.

Ernst Conservation Seeds Inc.
8884 Mercer Pike
Meadville, PA 16335

Showy Northeast Native Wildflower & Grass Mix		Lot# ERNMX-153-140307
Item	Purity (%)	Germ (%)
Sideoats Grama, 'Butte'	37.04	92.4
Virginia Wildrye, PA Ecotype	14.85	96.0
Indiana Grass, PA Ecotype	8.95	22.0
Autumn Bentgrass, Albany Pine Bush-NY Ecotype	2.99	82.0
Partridge Peac, PA Ecotype	3.99	50.0
Tall White Beardtongue, PA Ecotype	3.50	2.0
Marsh (Dense) Blazing Star (Spiked Gayfeather)	2.99	31.0
Purple coneflower	2.90	95.00
Lanceleaf Coreopsis, Coastal Plain NC Ecotype	2.00	85.0
Blackeyes Susanm Coastal Plain NC Ecotype	2.00	95.5
Blue False Indigo, Souther WV Ecotype	1.99	90.0
Oxeye Sunflower, PA Ecotype	1.99	95.0
Ohio Spiderwort, PA Ecotype	1.98	3.0
Smooth Blue Aster, MN	1.94	91.0
New England Aster, PA Ecotype	1.67	75.2
Butterfly Milkweed	1.00	88.0
Browneyed Susan, WV Ecotype	0.99	84.0
Hairy Beardtongue	0.97	40.0
Early Goldenrod, PA Ecotype	0.91	33.0
Wild Bergamot, PA Ecotype	0.50	42.0
Orange coneflower, Northen VA Ecotype	0.50	1.0
Wild Senna, VA & WWV Ecotype	0.50	1.0
Maryland Senna	0.50	52.0



OPERATING THE DRILL

CALIBRATION

Dryland Aggressive Mix #1 - Pawnee Buttes Seed Inc.

Pawnee Buttes Seed Inc.
605 25th St. P.O. Box 100 Greeley, CO 80632

PBSI. Dryland Aggressive Mix#1		PB-35125-14	
Species	Purity (%)	Germ (%)	% Mix
Revenue, Slender Wheatgrass	28.66	97	30
Luna, Pubescent Wheatgrass	14.84	91	15.24
Bozoisky Select Cort Russian Wildrye	9.22	95	9.66
Lincoln, Smooth Bromegrass	9.06	97	9.58
Arnba, Western Wheatgrass	6.55	91	6.96
AC Mallard Select, Green Needlegrass	5.53		5.58
Lincoln, Smooth Bromegrass	4.83	85	
Lodorm, Green Needlegrass	4.41	98	4.42
Bozoisky, Russian Wildrye	3.18		3.26
Arnba, Western Wheatgrass	2.93	95	3.04
Shoshone Wildrye Vavilov Siberian Wheatgrass	2.5	90.5	3.23
Bozoisky, Select Cert Russian Wildrye	2.03	86	2.08
Dahuria, Wildrye	1.5	85	1.53
Manchar, Smooth Bromegrass	0.08	95	0.08

Native Prairie Mix - Pawnee Buttes Seed Inc.

Pawnee Buttes Seed Inc.
605 25th St. P.O. Box 100 Greeley, CO 80632

PBSI. Native Prairie Mix		PB-35101-14	
Species	Purity (%)	Germ (%)	% Mix
Western Wheatgrass			
Arnba, Western Wheatgrass	43.62	91	46.36
Green Needlegrass	95.84	96	26.05
Buffalograss	12.46	91	12.51
Sideoats Grama	7.97	80	11.71
Blue Grama	2.21	96	2.47
Sand Dropseed	0.91	94	0.91
Inert	5.81		
Crop	1.38		
Weed	0		



OPERATING THE DRILL

CALIBRATION

Economy CRP Mix - Osenbaugh Grass & Wildflower Seeds

Osenbaugh Grass & Wildflower Seeds
11009 542nd St., Lucas, IA 50151

Kind	PLS Pounds	Seeds per Sq. Ft.	Purity	Genn	Total lbs.
Roundtree Big Bluestem	5.0000	3.67	88.50	88.00	6.4202
IA Eco Canada Wildrye	0.5000	0.19	98.91	97.00	0.5212
Holt Indiangrass	0.5000	0.44	93.78	94.00	0.5672
Little Bluestem	0.2500	0.28	81.36	90.00	0.3414
IA Eco Rough Dropseed	1.1500	2.53	98.91	34.00	1.2238
Slender Wheat Grass	1.7500	0.89	98.99	88.00	2.0089
IA Eco Virginia Wildrye	3.0000	0.93	88.83	90.00	3.5550
Rosana Western Wheatgrass	1.2500	0.66	91.17	90.00	1.4586
Butte Sideoats Grama	0.1000	0.04	91.27	76.00	0.1218
Inert			100	0.00	24.0000
Total Soft Seeds	13.5000	9.63			40.2180
Trailblazer Switchgrass	3.7500	3.86	99.96	90.00	3.9078
VNS June Grass	0.4050	5.95	79.88	92.00	0.5511
VNS Purple Top	2.5000	4.78	99.75	14.00	2.5316
PA Eco Common Fox Sedge	0.8000	5.88	99.32	32.00	0.9589
Western Yarrow	0.1750	2.29	98.26	92.00	0.1936
IA Eco Evening Primrose	0.1750	1.16	99.16	52.00	0.1801
Old Field (gray) Goldenrod	0.0500	1.10	75.14	3.00	0.0731
VNS Foxglove Beardedtor	0.1750	1.67	88.45	95.00	0.2083
IA Eco Prairie Cinquefoil	0.0500	0.84	99.48	94.00	0.0523
Canada Goldenrod	0.0050	0.11	87.40	95.00	0.0060
IA Eco Brown-eyed Susan	0.1000	0.32	98.69	37.00	0.1152
IA Eco Black-Eyed Susan	0.0750	0.51	99.77	93.00	0.0792
VNS Patridge Pea	1.0000	0.20	99.93	8.00	1.0878
VNS White Prairie Sage	0.0250	0.46	93.11	99.00	0.0271
VNS Seedbox	0.0150	1.43	97.18	66.00	0.0178
IA Eco Sneezeweed	0.0050	0.05	94.52	54.00	0.0054
Total Hard Seeds	9.3050	30.59			9.9953
Grand Total	22.805	40.22	96.83	48.3	50.2131



OPERATING THE DRILL

CALIBRATION

Prairie 3 Plus - Stock Seed Farms

Stock Seed Farms
28008 Mill Road, Murdock, NE 68407

Prairie 3 Plus Prairiegrass Mixture		LOT P63+314-1
Kind	Purity (%)	Germ (%)
Sideoats Grama	40.01	90
Little Bluestem	30.06	94
Buffalograss	8.73	93
Blue Grama	8.38	96
Total Purity = 87.18 %		
% of PLS = 81.08 %		
1PLS = 1.23 Bult		

Prairie 7 - Stock Seed Farms

Stock Seed Farms
28008 Mill Road, Murdock, NE 68407

Prairie 7 Prairie Grass Mix			
Purity	Kind	Germ	Dormant
16.57	Big Bluestem	80	8
15.71	Indian Grass	52	40
15.13	Little Bluest3em	70	26
11.37	Sideoats Grama	65	30
11.29	Virgina Wildrye	96	0
4.24	Blue Grama	40	45
4.02	Switch Grass	62	32
Total Viable: 92			
Lot No: P7-314-1			
% of PLS = 72.06 %			



OPERATING THE DRILL

CALIBRATION

Premium Irrigated Pasture Mix #1 - Pawnee Buttes Seed Inc

Pawnee Buttes Seed Inc.
605 25th St. P.O. Box 100 Greeley, CO 80632

PBSI. Prem. Irrig. Past. Mix #1		PB-34982-14	
Species	Purity (%)	Germ (%)	% Mix
Fleet, Meadow Bromegrass	79.93	88	75
Paiute, Cert, Orchardgrass	11.98	91	12.5
Niva, Cert Orchardgrass	11.87	97	12.5
Inveert	2.08		
Crop	0.15		
Weed	0		

Scorched Earth Recovery Mix - Native American Seed

Native American Seed
3791 N US Hwy 377, Junction TX 76849

Scorched Earth Recovery Mix			Lot #181601042613	
Kind	% Mix by wt	Test Date	Germ (%)	Total Germ (%)
Sideoata Grama	17.46	8/13	96	96
Prairie Wildrye	11.94	4/14	94	97
Little Bluestem	9.62	8/13	14	99

Indian Blanket 11.25%, Buffalograss 3.88%, Midway Mix 3.65%, Purple Prairie clover 3.52%, Indiangrass 3.40%, Cutleaf Daisy 3.23%, Tall Dropseed 3.12%, Switchgrass 2.99%, Plains Coreopsis 2.88%, Texas Yellow Start 2.59%, Sand Lovegrass 2.04%, Green Sprangletop 1.94%, Virginia Wildrye 1.93%, Huisache Daisy 1.89%, Lemon Mint 1.85%, Plains Bristlegrass 1.66%, Illinois Bundleflower 1.49%, Gayfeather 1.46%, Texas Bluebonnet 1.19%, White Prairie Clover 1.11%, Prairie Verbena 1.02%, Common Sunflower .69%, Sand Dropseed .47%, Arizona Cottontop .40%, Curly Mesquite .36%, Red Three awn .28%, Purple Three Awn .25%, Texas Cupgrass .25%, Texas Wintergrass .09%, White Tridens .09%, Cane Bluestem .01%
Purity = 86.52%



OPERATING THE DRILL

CALIBRATION

Minnesota CP25 - Millborn Seeds

Millborne Seeds Inc.
1334 Western Ave. Brookings, SD 57006

See pages 30-7 & 30-8 for seeding charts.

The seed mix information was unavailable at the time of printing. It will be inserted for the next edition of the manual.

Minnesota CRP - Millborn Seeds

Millborne Seeds Inc.
1334 Western Ave. Brookings, SD 57006

See pages 30-7 & 30-8 for seeding charts.

The seed mix information was unavailable at the time of printing. It will be inserted for the next edition of the manual.

South Dakota CRP - Millborn Seeds

Millborne Seeds Inc.
1334 Western Ave. Brookings, SD 57006

See pages 30-7 & 30-8 for seeding charts.

The seed mix information was unavailable at the time of printing. It will be inserted for the next edition of the manual.

Little Bluestem - Sharp Bros Seed

Sharp Bros, Seed Company
1005 S. Sycamore Healy, KS 67850

See Pages 30-7 & 30-8 for seeding charts.

The seed mix information was unavailable at the time of printing. It will be inserted for the next edition of the manual.

Side Oats Gama - Sharp Bros Seed

Sharp Bros, Seed Company
1005 S. Sycamore Healy, KS 67850

See Pages 30-7 & 30-8 for seeding charts.

The seed mix information was unavailable at the time of printing. It will be inserted for the next edition of the manual.



OPERATING THE DRILL

CALIBRATION

Big Bluestem - Sharp Bros Seed

Sharp Bros, Seed Company
1005 S. Sycamore Healy, KS 67850

See Pages 30-10 and 30-14 thru 30-18 for seeding charts.

The seed mix information was unavailable at the time of printing. It will be inserted for the next edition of the manual.

Big Bluestem - Roundstone Seed

Roundstone Native Seed, LLC
9764 Raider Hollow Road Upton, KY 42784

See Pages 30-7 and 30-8 for seeding charts.

The seed mix information was unavailable at the time of printing. It will be inserted for the next edition of the manual.

Side Oats Grama - Roundstone Seed

Roundstone Native Seed, LLC
9764 Raider Hollow Road Upton, KY 42784

See Pages 30-10 and 30-14 thru 30-18 for seeding charts.

The seed mix information was unavailable at the time of printing. It will be inserted for the next edition of the manual.

Virginia Wild Rye - Roundstone Seed

Roundstone Native Seed, LLC
9764 Raider Hollow Road Upton, KY 42784

See Pages 30-10 and 30-14 thru 30-18 for seeding charts.

The seed mix information was unavailable at the time of printing. It will be inserted for the next edition of the manual.



OPERATING THE DRILL

CALIBRATION

Special thanks to the following seed companies for providing Truax Company with a wide variety of mixes and monocultures to create our calibration tables

Ernst Conservation Seeds Inc. 8884 Mercer Pike Meadville, PA 16335 1-800-873-3321 http://www.ernstseed.com/	Millborn Seeds Inc. <u>1335 Western Ave.</u> Brookings, SD 57006 605-697-6306 http://www.millbornseeds.com/
Native American Seed <u>3791 N. US Hwy 377</u> Junction, TX 76849 1-800-728-4043 https://www.seedsource.com/	Osenbaugh's Prairie Seed Farms <u>11009 542nd St.</u> <u>Lucas, IA 50151</u> 1-800-582-2788 http://www.prairieseedfarms.com/
Pawnee Buttes Seed Inc. <u>605 25th Street</u> Greeley, CO 80632 970-356-7002 http://www.pawneebuttesseed.com/	Roundstone Native Seed, LLC <u>9764 Raider Hollow Road</u> Upton, KY 42784 270-531-3034 https://www.roundstoneseed.com/
Sharp Bros. Seed Company 1005 S. Sycamore Healy, KS 67850 620-398-2231 http://www.sharpseed.com/	Stock Seed Farms, Inc. <u>28008 Mill Road</u> Murdock, NE 68407 402-876-3771 http://www.stockseed.com/



OPERATING THE DRILL

SEED DELIVERY & PLACEMENT

15) SEED PASSAGEWAY

Seed passageways for all boxes should be cleaned of cobwebs, etc. at the beginning of the season and checked periodically during use. Both the fluffy box and the cool season grain box use convoluted rubber hoses that are subject to plugging from small stems and chaff getting caught in the convolutions. Care must be taken when planting trashy, fluffy seed to watch for plugging of the seed tubes.

Generally, if plugging occurs when planting fluffy seed, it may be prevented by stepping the RPM of the speed changer down several notches. This will reduce the seeding rate. Before proceeding to drill after a plug, be sure to clean all debris from the seed passageway down to and including the furrow opener.

Backing the drill up with the planters down in the working position may cause a plug to occur. **DO NOT BACK THE DRILL UP WHEN THE OPENERS ARE IN THE PLANTING POSITION.** Plugging will also occur when a hose is kinked for a period of time and then straightened (which allows a slug of seed down the seed tube all at once).

Generally, hand collected seed must be cleaned before planting through a double disc drill. A broadcast planter such as the Truax Trillion, Pull Type Broadcast Seeder, or Seed Slinger can plant extremely dirty seed. Drill seeders such as the OTG need to have the seed commercially cleaned.

Sun and heat will at times collapse seed tubes and thereby cause plugging.

16) OPERATING SPEED

Operate the drill at a ground speed of 4-5 mph. Some field conditions may allow 5-7 mph ground speed. The field conditions and speed of operations may affect flow of the seed through the drill and seed to soil contact. It is important to re-check seeding rates and seed placement at operating speed. Small, hard seeds flow easily through the small seed box, permitting faster speeds, but do not exceed 6 mph. Seeds tend to be "tossed" out of the furrow when the drill is operated too fast. When no-tilling, reduce the ground speed of the drill by 1/3.

17) DRILL SEEDING CAPACITY

The theoretical field capacity for a drill can be estimated with the following formula:

$$\frac{\text{Drill Width (feet)} \times \text{Speed (mph)}}{8.25} = \text{Acres per Hour}$$

The actual field efficiency or amount of fieldwork accomplished is somewhat less than this theoretical calculated rate due to turns at the end of the fields, time spent filling seed boxes, other down time, etc. Field efficiency may be between 65% and 80%. For estimating purposes use the lower end (65%) for small fields, low quality seed, steep terrain, etc. and the higher end (80%) for larger fields, high quality seed, leveler fields, etc.



OPERATING THE DRILL

SEED DELIVERY & PLACEMENT

18) SEED PLACEMENT & OPENER DEPTH

The depth of seed placement is dependent on 8 factors:

- 1) Diameter of metal depth bands.
- 2) Diameter and condition of opener discs.
- 3) Style of no-till coulters.
- 4) Depth of placement of no-till coulters.
- 5) Seed bed cover.
- 6) Pre-tillage of seed bed and post-tillage firming of seed bed before drilling.
- 7) Placement and tension of press wheel torsion spring. (part #10961 page 90-5)
- 8) Style of press wheel: Standard "V" press wheel (part# 01093A1), optional 2" wide press wheel (part#01093A3), optional double 1" wide pinch wheels (part #1093PWA), and angular mounted cast iron press wheels (part # 10941).

For the most part, the final seed placement will depend on a combination of the above factors and may be overshadowed by the specific soil types and moisture conditions found on a site.

Depth Bands: The five different diameter depth bands, 12-1/2", 12", 11-1/2", 10-1/2", and 9-1/2" when installed on planting discs will allow different amounts of exposed blade to create a narrow "V" slot for the seed to be deposited in to. For example, the standard band (12") when installed on a 13-1/2" new disc blade will allow 3/4" of exposed blade. This band/blade combination when used to plant in to firm, tilled seed bed will deposit the seed at about 3/8" to 1/2" deep.

Opener Discs: The standard opener disc on OTG drills is 13 - 1/2" new and when wear and usage reduces this to less than 13-1/8" - 13-3/16" the blades should be replaced because the depth of seed placement will be affected.

No-Till Coulters: The four styles of no-till blades will provide differing amounts of litter disturbance in front of the planting discs. The depth of seed placement is in part a reflection of the disturbance the no-till coulters make in the litter and root mat prior to having the double disc with depth band deliver the seed in to the soil envelope. If the litter is not penetrated, and the seed is not deposited in to mineral soil, there will be less germination and establishment. a) The 13-1/2" Trash Plow blade, (#5301) is mounted at an angle to vertical and at an angle to line of travel. This blade combination is the most aggressive and is ideally suited to sod seeding, roadside sites and other difficult conditions. Care must be exercised when using it on sod sites so that ribbons of sod aren't brought up with little soil to cover the seed. Also, care must be exercised on sites where you go from bare ground to sod conditions because the blade will cut deep in to bare ground with resulting poor placement of the seed. b) The 18" Trash Plow blade (# 5302) is mounted perpendicular to the ground and parallel to the line of travel. This results in a minimum of litter disturbance and is ideally suited to heavy residue conditions typically found when planting corn ground or similar. c) The 18" flat blade with a 24 wave ripple edge, mounted on a caster style shank creates the least disturbance and therefore is suited to sites subject to erosion and small amounts of litter. d) The 18" flat blade with a 13 wave ripple edge, mounted on a caster style shank is suited to sites that would tend to "snow plow" if one of the concave Trash Plows were used.



OPERATING THE DRILL

SEED DELIVERY & PLACEMENT

No Till Coulters - Depth of Placement: Increased penetration of the double discs can be achieved by lowering the no-till coulters that run ahead of the double discs. A simple change of depth bands will not get deeper seed placement if the bands are held up and ride on top of litter. Therefore lowering the no-tills to a deeper position than the standard placement will allow the double discs with depth bands to run lower and place the seed deeper.

Seed Bed Cover: Corn clods, bare ground, sod all affect the ability of the double disc openers to create a furrow in the soil to receive the newly planted seed. A combination of opener discs with depth bands, leading no-till coulters and operator finesse/skills will determine the success of seed placement.

Seed Bed Tillage: Cost of labor, loss of moisture, and erosion control are all served by reduced tillage and in turn the amount and type of tillage affect the seed placement. Seed planted through a double disc opener with depth bands in to a seedbed that has been worked by a leading no-till coulters to expose mineral soil will provide labor, moisture loss and erosion control benefits. Similarly, prepared seed beds that have been post tillage rolled, and firmed will provide the best depth of seed placement of planted seeds. Increased economics can be achieved and well as reduced erosion when the leading press wheel, (part# 4211) is mounted on the caster style no-till mount. This units rolls and firms a 4" band in front of the double disc planter while leaving the 3-1/2" strip between rows loose and friable to allow moisture absorption.

Press Wheel Tension: The position of the spring tang (part # 10961 - page 90-5) on the boot casting, (part # 0888 - page 90-5) will affect the down pressure the press wheel exerts on the soil surface.

Press Wheel Styles: a) The standard "V" press wheel, (part # 01093A1) presses a firm "V" behind the double disc opener and does the best job of keeping the seed shallow and in firm soil to seed contact. b) The 2" wide press wheel (part # 01093a3) presses the seed deeper in to the "V" slot and fills the "V" and packs the seed deeper. c) The double 1" pinch wheel packers (part # 1093PWA) moves and covers the seeds deeper. d) The cast iron press wheel (part 10941) breaks down side walls and moves and crushes soil lumps as it covers the seed.

19)SEED FILLERS/EXTENDERS

Fillers/extendors such as vermiculite, kitty litter, rice hulls, and cotton seed hulls are good fillers/extendors when you want to reduce seeding rate. It is not recommended to use fertilizer/sand because of their corrosive actions to seed meters.

20) WILDFLOWER

When sowing wildflower seed at a very low rate (grams/acre, ounces/acre), it is suggested that the grass mix be put in the seed box for a pre-determined # of acres. Then the operator will sprinkle the corresponding quantity of wildflower for the same area into the seedbox on top of the grass without further mixing of the seeds, and then proceed with planting. The stirring of the agitators will mix the wildflower in to the other seed in the box.



OPERATING THE DRILL

DIGITAL ACRE METER

21) DIGITAL ACRE METER

The Danaher acre meter is field programmable. Your Truax drill digital acre meter has already been programmed to the specific specification of your drill. However, should the need arise to reprogram the meter due to changes in seed rates or tires, the following is a guide to help you arrive at the programmed number, which is the amount of revolutions the clutch shaft will rotate when planting one acre.

Step 1: Determine the circumference (in feet) of the drive wheel.

Measure the diameter (D) of the drive wheel in inches of your drill. Enter this number into the formula for circumference (C). $C = (3.14 \times D)/12$

Example: for a 22-1/4" wheel diameter

$C = (3.14 \times 22-1/4)/12$ which equals 5.822 feet.

Step 2: Determine the distance (in feet) your drill needs to travel to plant one acre.

To determine the distance, use the table below.

Drill Model	Planting Width (ft)	Distance drill needs to travel to plant 1 acre (ft)
7508	5	8,712
7512	7.5	5,808
7518	10	4,356
7516	11.25	3,872
7522	13.75	3,168

Note: The distance the drill needs to travel to plant one acre is determined by taking the square feet in one acre (43, 560 sq. ft.) and dividing it by the planting width.

Step 3: Determine the number of revolutions the drive wheel will rotate while planting one acre.

To determine this number, take the distance the drill needs to travel to cover one acre from the table above and divide it by the circumference (C) of the drive wheel (from step 1).

Example: For an OTG 7508 model

The number of drive wheel rotations in one acre = 8,712 ft divided by the circumference (C) 5.822 feet which equals 1496.39 revolutions.



OPERATING THE DRILL

DIGITAL ACRE METER

Step 4: Determine the number of revolutions the clutch shaft will rotate when planting one acre.

From the table below, determine the decimal fraction number of your drill. Take this number and multiply it by the number of revolutions the drive wheel rotates when planting one acre (determine from step 3).

Drill Model	Decimal Fraction Number	Sprockets that determine decimal fraction number
OTG MODELS	0.3333333	26 tooth sprocket at the drive wheel drives another 26 tooth sprocket located just above it on the drive shaft- on the other end of the drive shaft is a 18 tooth sprocket driving a 54 tooth sprocket located on the clutch. $(26/26) \times (18/54) = 0.3333333$

Example: for OTG 7508 Model

Number of revolutions the clutch shaft will rotate when planting one acre = 0.33333 (from table above) x 1496.39 (from step 3) which equals 498.80.

The number of revolutions of the clutch shaft per one acre of planting is the number to program into the digital acre meter (rounded to nearest tenth which is 498.8)

If using output reduction, reduce the number of revolutions of the clutch shaft per one acre of planting by half.

NOTE:

If a seed mix is not shown in any charts, please contact Truax company through email and let us know the seed and we will include it in future copies of the manual. Your opinion is valuable to us.

Email: Truax1@qwestoffice.net or Truax3@qwestoffice.net