



## Michigan Technical Note

USDA-Natural Resources Conservation Service

### Calibration of Truax No-Till Grain Drill (Model FLX 1188RD)

Many Conservation Districts in Michigan offer no-till grain drills to clients for establishment of conservation plantings. The Truax no-till grain drill is a common brand of drill offered through the Conservation Districts. This document provides instruction in calibration and operation of the Truax no-till drill, using Model FLX 1188RD as an example. (This document is not intended as an endorsement of Truax, or any other grain drill manufacturer. The techniques listed in this document will be similar to those used to calibrate grain drills from other manufacturers.)

#### SEED BOXES

Truax no-till grain drills can have several seed boxes, depending on the model and options selected when purchased. The drill in this example has three seed boxes as described below.

**Small seed box (front)** - wildflowers, alfalfa, trefoil, timothy, redbtop, switch grass & cool season mixes.



Small seed box unit

**Fluffy seed box (center)** - has a large fluffy seed stirrer to improve seed flow of big bluestem, indiangrass, little bluestem, or warm season grass mixtures.



Fluffy seed box unit

**Cool season/grain box (back)** - has a small seed stirrer to improve seed flow of wheat, oats, sorghum, soybeans etc.



Cool season/grain box unit

All 3 boxes operate simultaneously and can be calibrated to deliver different seeding rates.

**SEEDING RATE CALIBRATION PROCEDURE** (assuming 8" row spacing and 7.5' drive tire circumference)

#### **Small Seed or Cool Season/Grain Box**

1. Attach drill to tractor, set brakes or turn off with tractor in gear.
2. Select the correct seed box.
3. See Operating the Drill Chart for Small Seed or Cool Season/Grain Box. Set the seed box adjustment lever so the exposed flute width is near the desired bulk seed rate in lbs/ac found on the small seed/cool season chart. This is a **GOOD STARTING POINT** for drill calibration.
4. Fill 3 seed inlets with the seed or seed mixture.
5. With drill in the raised position remove the drop tubes from the seed inlets (step 4) and attach a catch bag to each outlet. Lower drill to the planting position.
6. Jack up the drive wheel. Place jack on flat spot to lift the drive wheel or raise drill with transport wheels so drive wheel turns freely by hand.
7. When planting large seed move the clean out lever (on the left side of each cup) to the middle of bottom setting to prevent crushing or chipping of the seed.
8. Engage drive wheel lock and rotate drive wheel tire 30 times.
9. Combine the seeds from the 3 catch bags and weigh, in ounces. Multiply seed weight by 6.25 to determine output in pounds of seed per acre. Example: 3 oz x 6.25 = 18.75 lbs/ac.



Drive wheel flat spot



Drive wheel lock engaged

## Fluffy Seed Box

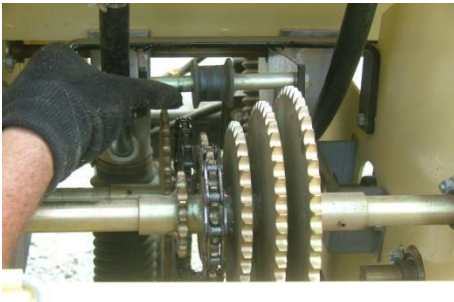
It is often more accurate to calibrate the fluffy seed box by running the drill over a known distance and calculating the seeding rate than to calibrate using the stationary method described above.

1. Fill 3 seed inlets with the fluffy seed or seed mixture.
2. With drill in the raised position remove the drop tubes from the seed inlets (step 1) and attach a catch bag to each outlet.



Seed drop tubes

3. Lower drill into planting position to engage the drive clutch.
4. Adjust the gear settings per the Speed Changer Variables -FLUFFY SEED BOX CHART for the desired bulk seeding rate (lbs/ac).



When looking at the drill moving the gear drive chain left increases the seed rate of the fluffy seed box.

5. Measure and flag 500 linear feet of land to perform a calibration run.
6. Operate the TRUAX Drill at 4-5 mph over the 500 feet to calibrate the seed rate.
7. Combine the seeds from the 3 catch bags and weigh, in ounces. Multiply seed weight by 2.7 to determine output in pounds of seed per acre.

## Other Operating Notes:

**Do not back up the drill when openers are in the planting position. The goal is to prevent the double disk openers from plugging.**

**Calibrate each seed box** - Seeding rate charts in the boxes and operating manual are intended as a starting point for calibration.

**Seed Depth** - is controlled by seed depth bands or by adding adjustable cylinder stops on wheel lift cylinders. Be sure each wheel cylinder lift has the same number and width of stops to keep the drill level side to side.

**Drill Speed** – Seed tends to be tossed out of the furrow if operated too fast; optimum operation speed is at 4-5 mph.

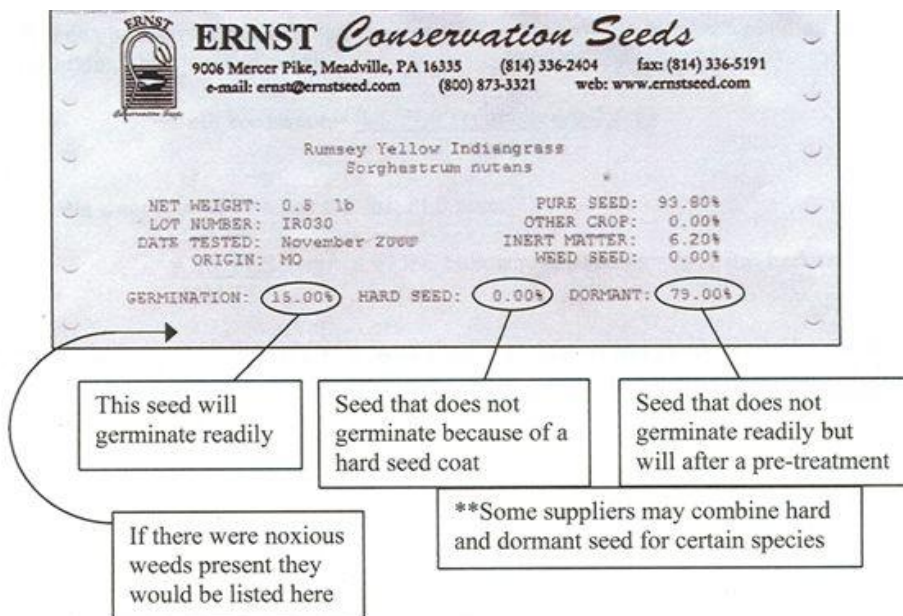
**Coulter Depth** -is controlled by adding weight to the tool bar, adjusting separate hydraulic control or changing the depth gauge bands on each side of the seed openers.

**Fluffy seed box Derailleur Style Speed Changer:** Driver (back) sprocket - increase driver sprocket size to increase seeding rate. Driven (front) sprocket –reduce driven sprocket size to increase seeding rate. When looking at the drill from the front moving the chain left to right decreases the seeding rate.

**Double Disk Openers:** Disk blades should be replaced when wear reduces the diameter ½ inch from 13.5 to 13 inches.

### Using Seed Package Label Information to Calculate PLS and Seeding Rates

Seeding rate recommendations in NRCS Standards are stated in amount of pure live seed per area planted (e.g. pounds PLS/acre). Information found on the seed package label is used to determine the amount of pure live seed in a package, and that information is then used to determine the bulk seeding rate needed to obtain the recommended PLS seeding rate.



Example seed label

Example– Calculating PLS and bulk seeding rate for indiagrass . Using the information in the seed package label above determine the PLS percentage in the seed lot.

Step 1: Determine total seed germination

Total Germination = germination + hard seed + dormant seed

Total Germination = 15 + 0 + 79 = 94%

Step 2: Determine PLS percentage

$$\text{PLS \%} = \frac{\% \text{ Purity} \times \% \text{ Total Germination}}{100}$$

$$\text{PLS\%} = \frac{93.8 \times 94}{100} = 88.2\%$$

If the recommended seeding rate for indiagrass is 4 lb PLS/acre, how much of this seed lot is required to plant 1 acre?

$$\text{Bulk seed/acre} = \frac{\text{lbs PLS recommended/Acre}}{\text{PLS\%} / 100}$$

$$\text{Bulk seed/acre} = \frac{4 \text{ lb PLS/Acre}}{82.2 / 100} = 4.5 \text{ lb bulk seed}$$

This document is intended as a supplement to the Owner's Manual. Please refer to the Owner's Manual for information specific to the grain drill being used.

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