

UVM Extension Fact Sheet

Using a No-Till Grain Drill

Introduction

Any time you are seeding a crop or a cover crop, seed to soil contact is a critical component of successful establishment. No-till seeding may be particularly important in floodplains and highly erodible soils, by reducing soil and nutrient loss compared to high intensive tillage systems.

As farmers are moving to no-till, they can use a no-till grain drill to:

- establish a cover crop after harvesting corn silage
- rotate or convert annual crop land to hay or pasture
- improve hay or pasture by adding legumes
- establish legumes (i.e. soybeans) or cereal grains without primary tillage



There are many no-till grain drills on the market that come with different options and features. The Haybuster 107C No-Till Drill is a simple, reliable model that UVM Extension and Vermont Conservation Districts have to share with farmers in Vermont. This drill is 10.5 feet wide and has two large seed boxes and a small seeded legume box. This model was specifically chosen because of the price point and ease of transportation.

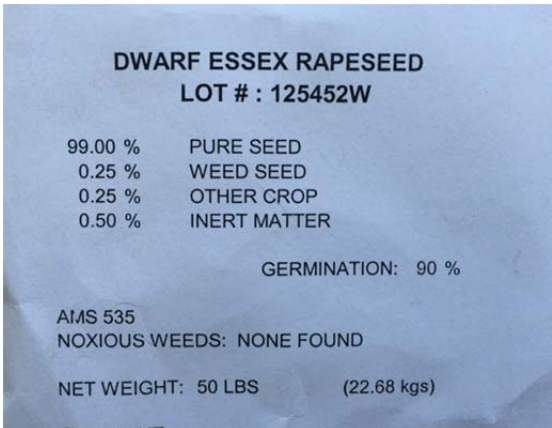
**Champlain Valley
Crop, Soil &
Pasture Team**
Middlebury, VT

Project Leader
Jeff Carter
Extension Agronomist

Agronomy Outreach
Rico Balzano
Cheryl Cesario
Daniel Infurna
Nate Severy
Kristin Williams
Kirsten Workman

Administration
Karen Gallott

(802) 388-4969
cvcrops@uvm.edu
www.uvm.edu/extension/cvcrops



In this example, the live seed is 99% and the germination is 90%, so the PLS is $0.99 \times 0.9 = 0.89$ or 89%

Proper Seed Rates

Recommended seeding rates from NRCS, agronomists and seed dealers are the Pure Live Seeding rates (PLS). Drilling requires less seed than broadcasting, but PLS rates should be considered. Accounting for PLS is done using the seed tag on the seed bag. That is, every bag of seed may have some inert or other matter and no seed has 100% perfect germination. This is particularly relevant if you have coated seed. To calculate the actual desired seed rate based on PLS, you take your seed rate goal and divide it by the percent that is actually pure live seed. For example, if your goal is 100 lbs of winter rye per acre, but your seed tag says 98% Pure Seed and 94% Germination, then your target seeding rate would be $100 / (0.98 \times 0.94) = 100 / 0.92 = 109$ lbs/acre.

See more on reverse →

Calibrating a Drill:

In order to accurately achieve your seeding rate goals, you should always calibrate the drill you are using. Start with the seeding chart either on the inside of the drill box cover or in the drill manual. It will give you a good approximation for the correct setting. However, the seeding charts may not be accurate, with variable seed size even within a species. To get more accuracy, you can put a measured quantity of seed in the drill, travel a known distance, and then vacuum out and weigh the remaining seed. You can also calibrate a drill by determining the number of wheel revolutions in a given length (i.e. 200 ft) and then with the drill in a stationary position, move the wheel by hand as you catch the seed in some manner. There should also be calibration instructions in the manual of your drill.

UVM Extension CVCROPs Team Haybuster No-Till Grain Drill Calibration “Cheat Sheet” Method

Using the stationary method we’ve already done the math to determine how to calibrate **our** No-Till Grain Drill.

- Pour seed in just one side of the box (we generally use the left side)
- Remove **one** tube on that side to catch the seed with a small jar or container
- Pre-weigh the container, or tare your scale based on it
- Turn the front wheel 50 times catching the seed (you will need 2 people or set up the seed catchment)
- Weigh the seed **in oz.** and multiply this number by 16.38 to get lbs/acre estimated seeding
- Adjust the opening and re-measure if the rate is not close enough

This is based on math involving distance traveled with 50 wheel turns. You may adjust the spacers within the box, this will affect the seeding rate. Larger spacers may be needed for larger seeds like peas, otherwise they may be crushed. If you are calibrating a different drill you can use this same method but you will need to determine what the distance equivalent is for 50 wheel turns, and the width of the drill/the number of openers (area is length x width). You should note that when the drill is low in seed it may not seed quite as effectively and we recommend seeding at **4 mph** (faster will not be as effective).

FAQs About UVM Extension Champlain Valley Crop, Soil & Pasture Team No-Till Drill:

How did we obtain the drills and how are they funded?

We originally obtained the drills in 2012 with an Ecosystem Restoration grant from the Vermont Agency of Natural Resources. The objective was to reduce soil and nutrient loss by demonstrating the use of these drills in Addison and Rutland Counties (primarily). We maintain the drills through continued grant funding and community support.

Who is eligible to use our drills?

Any farmer in the area is eligible; however you will need to coordinate with us ahead of time by contacting us to be put on our list. Projects for demonstration purposes to try new and innovative techniques are prioritized.

Is there a cost to use our drill?

While there is no official “charge” to use our drill, we are now asking for a \$10/acre donation to *partially* offset the costs of transportation and maintenance of the drill.

Who is responsible for cleaning the drill?

The last farmer who uses the drill is responsible for cleaning the drill before it leaves their property to go to the next farmer. While we often end up doing this, we strongly encourage farmers to take responsibility and vacuum out extra seed and make sure there isn’t excessive soil stuck on the drill. Remember that these drills are an opportunity we provide farmers at a low cost to encourage adoption of innovation and conservation. If you are certified organic, you should clean the drill prior to use to ensure proper sanitation and comply with certification requirements.

Is there more information about the drill?

We have our own seed calibration charts and a no-till drill 'handbook' that we can provide.

If you need help calibrating your own drill or need help calibrating our drill with your seed, please contact our office.

23 Pond Lane, Suite 300 Middlebury, VT 05753
champlain.crops@uvm.edu
(802) 388-4969

For calibration contact Kirsten Workman ext 347

To get on the list to use the drill, contact Rico Balzano ext 338

<http://www.uvm.edu/extension/cvcrops>

More Information About Other VT No-Till Grain Drills:

Poultney Mettowee Conservation District:

(802) 287-8339

<http://www.pmnrcd.org/agriculture/>

White River Conservation District:

(802) 295-7942 ext 112

<http://www.whiterivernrcd.org/resources>

UVM Extension North West Crops and Soils Program:

(802) 524-6501

<http://www.uvm.edu/extension/cropsoil/>

More Information About Drill Calibration:

<http://extension.psu.edu/plants/crops/grains/small/production/calibration-of-grain-seed-drills>

