

2014 TILLAGE RADISH SEEDING RATE TRIAL
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Tillage radishes are being utilized by farmers as a new cover crop for their unique characteristics. Tillage radishes are quick at scavenging nitrogen, provide good ground cover, and break down very quickly in the spring to make way for spring planting and provide available nitrogen to the next crop. The plants winter kill, but the dead frozen plant material can still suppress the earliest spring weeds from establishing. The holes left by decomposed roots allow more water to infiltrate the soil. Growing tillage radish as a cover crop in the northeast is new and best practices for success have yet to be established. Proper seeding rates must be determined to enable the crop to provide quick ground cover and substantial root growth while minimizing planting costs.

MATERIALS AND METHODS

A trial was conducted at Borderview Research Farm in Alburgh, Vermont in 2014 to evaluate four tillage radish seeding rates. The experimental design was a 2
(Table 1). The soil was a Benson rocky silt loam, and the area was previously planted with spring wheat and oats. The seedbed was prepared with a fall chisel, disk, and spike tooth harrow.

Table 1. Agronomic information for the 2014 tillage radish seeding rate trial at Borderview Research Farm.

Location	Borderview Research Farm Alburgh, VT
Soil type	
Previous crop	
Tillage operations	
Plot size (ft.)	
Replicates	
Seeding rates	
Planting date	
Harvest date	

using a cyclone sample mill (1mm screen) from the UDY Corporation. A subsample of each was retained for nitrogen analysis. The subsamples were analyzed for nitrogen content at the University Testing Laboratory in Burlington, VT.

Biomass data and stand characteristics were analyzed using mixed model analysis using the mixed procedure of SAS (SAS Institute, 1999). Replications within trials were treated as random effects, and hybrids were treated as fixed. Hybrid mean comparisons were mad

RESULTS

Using data from a Davis Instruments Vantage Pro2 weather station at Borderview Research Farm in Alburgh, VT, weather data was summarized for fall 2014 (Table 2). The table shows weather information from the month the crop was planted (August) through the month it was harvested (October). August was slightly cooler than usual, with average weather in September and warmer than normal in October (based on 1981-2010 data). While August and October had average levels of precipitation, September was dry with 2.31 inches less than the average rainfall. There were an accumulated 1016 Growing Degree Days (GDDs) at a base temperature of 50°F from the beginning of August to the end of October. This was 117 more than the historical 30-year average for August-October.

Table 2. Summarized weather data for fall 2014 Alburgh, VT.

Alburgh, VT	August	September	October
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Seeding rate did not significantly impact root length or diameter (Table 4). On average tillage radishes produced roots that were 19.0 inches long and 1.8 inches wide. The 6 lbs per acre seeding rate also had the longest average root length, although it was not significantly different from the other treatments (Table 4). As expected, the 3 lbs per acre seeding rate had the widest root diameter, although not significantly wider than the other treatments (Table 4)

DISCUSSION

In this study, seeding rate did not significantly impact tillage radish yield, root size, and percent of soil cover. The current recommended seeding rate provided by most seed companies is 6 to 8 lbs of tillage radish seed per acre. Based on this data, the lower seeding rate is adequate to accomplish the goals of this cover crop. However, tion. Multiple years of data
would be necessary to confirm this recommendation.

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