2023 HULLESS OAT VARIETY TRIAL

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Oats (*Avena sativa* L.) have a long history of production in the Northeast. Although most oats grown in the Northeast are planted as a cover crop or forage, oats grown as a culinary grain are a potential revenue source for farmers. According to the 2017 census, about 80 acres of land in Vermont is cultivated for oat grain

SD160149NO	South Dakota State University
SD160816NO	South Dakota State University
SD171242NO	South Dakota State University
Shelly	Solstice Seeds
Streaker	Albert Lea Seed House
Terra Hulless	Fedco Seeds

Plots were managed with practices similar to those used by producers in the surrounding area. Agronomic information is displayed in Table 2. The experimental design was a randomized complete block with four replicates. The previous crop was milkweed. The field was prepared with a Pottinger TerraDisc® prior to

Stand characteristics were analyzed using mixed model analysis using the mixed procedure of SAS (SAS Institute, 1999). Replications within the trial were treated as random effects, and treatments were treated as fixed. Treatment mean comparisons were made using the Least Significant Difference (LSD) procedure when the F-test was considered significant (p<0.10).

Variations in project results can occur because of variations in genetics, soil, weather, and other growing conditions. Statistical analysis makes it possible to determine whether a difference among treatments is real or whether it might have occurred due to other variations in the field. At the bottom of each table, a LSD value is presented for each variable (e.g. yield). Least Significant Differences

between two treatments within a column is equal to or greater than the LSD value at the bottom of the column, you can be sure in 9 out of 10 chances that there is a real difference between the two values. Treatments that were not significantly lower in performance than the highest value in a particular column are indicated with an asterisk. In the previous example, treatment A is significantly different from treatment C but not from treatment B. The difference between A and B is equal to 200, which is less than the LSD value of 300. This means that these treatments did not differ in yield. The difference between A and C is equal to 400, which is greater than the LSD value of 300. This means that the yields of these treatments were significantly different from one another.

RESULTS

Table 3. Temperature and precipitation summary for Alburgh, VT, 2023.

Alburgh, VT				

The hulless oat varieties ranged between 84 and 117 cm at the time of harvest with Nusso reaching 117 cm, comparable to Buff Sylvia, ND040341, Paul, and SD171242NO.

Significant differences were observed across all metrics for harvest and quality measurement amongst the hulless oat varieties (Table 5). OA1456-2N was the highest yielding variety within the trial at 2736 lbs ac^{-1} and was statistically similar to Casino, Fuego, Navaro, Nitro, Paul, SD120582NO, SD120601NO, SD120624NO, and SD160149NO. Overall, yields were

Trial mean	2070	36.2	16.2	11.3	51.1

‡Treatments with an asterisk (*) are not statistically different from the top performer, shown in **bold**.

Figure 1. Yield and crude protein of hulless oat varieties evaluated in Alburgh, VT, 2023.

DISCUSSION

The 2023 growing season showed temperatures below average and significantly higher precipitation coming in major rain events that severely impacted a vast number of crops. Years such as this highlight the importance of standability, especially for grain crops, which have a greater potential to be impacted by weather events leading up to harvest. Average yields for the trial were lower than in past years likely as a result of these weather events. Average trial yields in 2022 were 2733 lbs ac^{-1} with the same varieties trialed across these two past years showing a decrease in the 2023 growing season. When looking at grain quality it is also important to keep in mind grain quality as well as yields. While a certain variety may be highest yielding, the quality may be less desirable; as such, it might be necessary to compromise one parameter over the other depending on desired outcomes. While not presented in this data set, DON levels were evaluated for the first replication of this trial. For every variety within the trial values for DON remained

ACKNOWLEDGEMENTS