**2020 SPRING WHEAT CROSSES TRIAL**

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The goal of this project is to develop new spring wheat varieties that are suited for organic management in
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**Table 2. Trial agronomic information, Alburgh, VT, 2020.**

Populations were determined on 12-May by counting two one-foot sections of row in each plot. Disease and arthropod damage were assessed on 8-Jul. The top two leaves from three plants per plot were examined and the extent of foliar damage due to plant diseases or arthropod pests was estimated on a percent cover basis. Lodging was visually assessed on 21-Jul as a percent of each plot that was lodged.

Plots were harvested with an Almaco SPC50 small plot combine on 31-Jul. Grain moisture, test weight, and yield were determined at harvest. Seed was cleaned with a small Clipper M2B cleaner (A.T. Ferrell, Bluffton, IN) and a subsample was collected to determine quality characteristics. Grain quality was

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

probability are shown. Where the difference 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

foliar surface impacted in affected plants. Leaf rust was noted on 1.5% of plants scouted and powdery mildew was noted on 5.5% of plants scouted, both at an average of less than 1.0% of foliar surface affected in infected plants. The cultivar with the lowest total disease burden was Grange Corner Kelse/AC Walton

Falling number measures viscosity by recording the time in seconds it takes for a plunger to fall through a slurry to the bottom of a test tube. The viscosity is an indicator of enzymatic (alpha-amylase) activity in the kernel which most often results from pre-harvest sprouting in the grain. Low falling number indicates high enzymatic activity, or more pre-harvest sprouting damage. This is most common if there are rain events as the grain is ripening prior to harvest. Low falling number, below 250, has a negative impact on bread quality and can lead to lower prices paid for the wheat or possible rejection at the mill. The ideal range for wheat is 250-

cross planted, all well within the ideal range for bread baking, the most common end-use for hard red spring wheat. Falling numbers were all within an acceptable range, indicating low pre-harvest sprouting damage, a result of little to no rainfall in the days leading up to harvest. DON levels were very low, again likely due to dry growing conditions during the heading/flowering susceptibility window. Overall, several of the spring wheat crosses were similar to or exceeded the performance of the check varieties.

It is important to remember that this only represents one year of data. The weather this growing season was challenging for many crops at Borderview Research Farm, and across much of Vermont and New England, in 2020. The hot and dry weather led to drought stress, disease and pest pressures in many crops. However, the cereal grains performed well overall. They are better adapted to these types of conditions than the cooler and wetter weather that is more typical for this region. Though spring wheat was high yielding and most quality targets were met or exceeded this year, many years can be challenging for this crop in New England. lIt is important -3(t12 0 612 233(r)-3(em)15(em)15(ber)-5792 re,( -3(t92 re12 233y-4( w)12 3)4(o)11(k)11(,2 3(