2020

volume of grain, and determined from weight and dry weights. Thousand kernels weights were counted out by hand post-harvest. Oil was extruded from the seeds with an AgOil M70 oil press (Mondovi, WI) on 14-Jan, and the amount of oil captured was weighed to determine oil content.

Table 2. Hemp grain varieties evaluated in the hemp trial, Alburgh, VT, 2020.

Variety	Seed company	Days to maturity
Bialobreskie	Bija Hemp	130-145
Henola	Bija Hemp	115-120
Hlesia	Fiacre Seeds	115-120
Hliana	Fiacre Seeds	115-120
Hlukhoviskii-51	Fiacre Seeds	120-125
CFX-1	Hemp Genetics International	100-110
CFX-2	Hemp Genetics International	100-110
CRS-1	Hemp Genetics International	100-110
Katani	Hemp Genetics International	100-110
X-59	Legacy Hemp	100-110
NWG 2730	New West Genetics	100-120
NWG 452	New West Genetics	100-120
Canda	Parkland Industrial Hemp Growers	100-120
Joey	Parkland Industrial Hemp Growers	110-120
Altair	UniSeeds	100
Anka	UniSeeds	110
Ferimon	UniSeeds	129-134
Futura	Seedway	140-145

UniSeeds	Keenan and Cobden, Ontario
	(613) 646-9737
	orders@uniseeds.ca

Data were analyzed using a general linear model procedure of SAS (SAS Institute, 2008). Replications were treated as random effects, and treatments were treated as fixed. Mean comparisons were made using the Least Significant Difference (LSD) procedure where the F-test was considered significant, at $p<0.10$.

Variations in genetics, soil, weather, and other growing conditions can result in variations in yield and quality. Statistical analysis makes it possible to determine whether a difference between treatments is significant or whether it is due to natural variations in the plant or field. At the bottom of each table, a LSD value is presented for each variable (i.e. yield). Least Significant Differences (LSDs) at the 0.10 level of significance are shown. This means that when the difference between two treatments within a column is equal to or greater to the LSD value for the column, there is a real difference between the treatments 90% of the time. In the example to the right, treatment C was significantly different from treatment A, but not from treatment B. The difference between C and B is 1.5, which is less than the LSD value of 2.0 and so these treatments were not significantly different in yield. The difference between C and A is equal to 3.0, which is greater than the LSD value of 2.0. This means that the yields of these treatments were significantly different from one another. Treatment B was not significantly lower than the top yielding treatment, indicated in bold. A lack of significant difference is indicated by shared letters.

RESULTS

Seasonal

Harvest measurements, yields, and oil content data are displayed below in Tables 5 and 6. NWG 452 had the highest population of plants per area, at 9.33 plants ft^{-2} or 406,560 plants ac^{-1}, but plant populations were not statistically different between varieties (Table 5). Harvest moistures were also similar across varieties. The variety Hliana had the lowest harvest moisture at 14.2%. NWG 2730 had the highest average plant height at 169 cm and was statistically greater than the other varieties except for Futura (155 cm), Bialobreskie (154 cm), NWG 452 (151 cm), and Hliana (147 cm). Canda had the densest thousand kernel weight (TKW) at 17.5 g and

lbs ac^{-1}), which were all statistically similar to each other. Katani yielded the least at 356 lbs ac^{-1} and was significantly lower than all other varieties except for CFX-2 and Canda.

Table 6. Harvest yields and oil content by variety for industrial grain hemp, Alburgh, VT, 2020.

reatments

Figure 1. Grain hemp yields at 10% moisture and oil content, Alburgh, VT, 2020.

Figure 2. Hemp grain seed oil content in varieties trialed multiple years, 2018-2020, Alburgh, VT.

DISCUSSION

All hemp varieties reached full plant maturity. This year the varieties were harvested at the target range of moisture content, but after drying down yielded less oil than previous years. Grain hemp should be combined at a seed moisture range of 10-20% and then dried down to less than 10% for storage. Harvesting seed that is too dry increases risk of yield loss from shattering and bird damage and can reduce the quality of the grain. Harvesting plants at moistures near 20% also helps prevent dry hemp fibers from getting wrapped in the combine. Yields averaged 930 lbs ac^{-1} at 10% moisture, which was similar to the 2019 trial yields of 932 lbs ac^{-1} at 10% moisture, and in the median range compared to average yields from Canada of 500-1200 lbs ac^{-1}. Futura was the top performer in yield.

Varieties that had taller growth habits tended to yield much higher than those varieties specifically aimed towards grain production, such as Katani. NWG 2730 had the most seeds per pound, and it was also the variety with the highest heights and one of the higher performers in yield. It is important to remember that these data represent only one year of research, and in only one location. Additional research needs to be conducted to BTto23reW٭ħBT/F4 6.96 Tf1 0 0 1 216.53 583.66N(3(es)-3(e)9(ntW٭ħBT/F4 11.04 Tf1)9(t)-4(o ouc)8(t)-4(