Supplementary material

Table S1: Weather data from sowing to end of data collection obtained from a climate station located between the two sites as reported by The National Climate Database from the National Institute of Water and Atmospheric Research (NIWA). Available online: https://cliflo.niwa.co.nz/

Parameters	Weeks after sowing								
	1	2	3	4	5	6	7	8	9
Tmax (°C)	22.7	19.2	23.4	23.7	23.8	21.6	23.1	23.3	21.8
Tmin (°C)	14.7	9.7	12.9	15.1	13.9	13.5	11.1	13.0	11.5
Cumulative Rainfall (mm)	34.6	39.2	68.8	71.4	121.2	124.8	125	127.2	149.2
Relative humidity (%)	81.4	74.3	79.7	82.3	79.3	83.0	74.3	77.3	85.0

Table S2: Identification and quantification of compounds present (ng gDW^{-1} h^{-1}) in the headspace samples between the two sampled sites. Compounds with no value indicated were absent in the corresponding site.

Class/ compound ID	Site 1		Site 2	
Green leaf volatiles (GLV)	MEAN	SEM	MEAN	SEM
3-Hexen-1-ol, (*Z*)-	0.892	0.424	3.707	2.411
3-Hexen-1-ol, acetate, (*Z*)-	35.157	7.334	37.643	11.207
Total (GLV)	36.048	7.375	41.350	12.475
Monoterpenes (M)				
α-Pinene	65.898	13.384	99.309	14.829
β-Pinene	26.213	5.581	41.734	6.308
β-Myrcene	450.047	118.694	466.232	98.038
α-Phellandrene	2.026	0.996	2.171	0.976
2-Carene	0.790	0.477	0.520	0.347
3-Carene	1.292	1.064	2.245	1.135
Cyclopentene, 3-isopropenyl-5,5-dimethyl-	0.215	0.214	1.136	0.836
Limonene	9.634	3.722	27.166	13.690
Eucalyptol	0.216	0.153	1.687	1.012
(*E*)-β-Ocimene	16.082	3.860	22.288	6.821
(*Z*)-β-Ocimene	206.088	50.722	167.442	53.227
γ-Terpinene	0.292	0.291	0.147	0.146
Terpinolene	0.635	0.487	18.668	18.341
Cyclohexene, 4-methyl-3-(1-methylethylidene)-	60.244	26.858	72.702	28.039
L-Camphor	0.354	0.175	0.399	0.295
p-Cymenol	0.693	0.604	1.471	0.881
Cyclohexene, 1-methyl-5-(1-methylethenyl)-	2.110	1.693	8.846	5.474
L-β-Pinene	5.759	4.040	0.967	0.966
Sabinene	2.918	1.840	6.030	3.543
Total M	851.507	182.974	941.160	180.094

Sesquiterpenes/ Sesquiterpenoids (S)				
γ-Caryophyllene	51.096	13.413	60.708	22.816
α-Bergamotene	0.676	0.382	1.730	0.814
(*E*)-α-Bergamotene	3.189	1.529	3.139	1.604
α-Guaiene	0.669	0.460	1.556	1.088
(*Z*)-β-Farnesene	3.831	1.556	5.857	2.400
(*E*)-β-Famesene	2.019	1.487	1.311	0.746
Humulene	11.630	3.340	12.567	5.151
β-Selinene	0.853	0.376	1.374	0.900
α-Farnesene	0.488	0.253	-	-
Caryophyllene oxide	0.487	0.177	1.052	0.774
Total S	74.940	16.922	89.295	32.320
Other (O)				
Dodecane	0.398	0.245	0.577	0.42
Tridecane	0.261	0.111	0.760	0.430
Dodecanoic acid	4.409	1.601	-	-
Butyric acid	0.535	0.382	1.038	0.917
Total O	5.6022	1.603	2.377	1.054

Table S3: Flowering date (beginning of flowering) of the six hemp cultivars at both sites (Retrieved from unpublished (work in progress) doctoral dissertation, Massey University, New Zealand).

Site	Cultivar	Flowering start date (days after sowing)
PGU	CFX 2	27 days
	CRS1	27 days
	Ferimon 12	43 days
	Katani	25 days
	Futura75	45 days
	Finola	24 days
PCRU	CFX 2	27 days
	CRS1	29 days
	Ferimon 12	39 days
	Katani	26 days
	Futura75	41 days
	Finola	24 days

Table S4: Field capacity measured in both sites from sowing to end of data collection (Retrieved from unpublished (work in progress) doctoral dissertation, Massey University, New Zealand).

Field capacity	Weeks after sowing								
	1	2	3	4	5	6	7	8	9
Field capacity at the PGU (%)	50.70	69.00	61.87	50.69	73.13	72.06	66.79	66.44	83.57
Field capacity the PCRU (%)	49.04	74.13	64.83	53.45	52.79	45.71	39.09	33.40	42.33

Table S5: Percentage contribution of different volatile compounds to the volatile blend of the six hemp cultivars (n = 80). GLV = Green leaf volatiles, M = Monoterpene, S = Sesquiterpene/sesquiterpenoid, O = other, hyphen (-) = not detected.

Compound Type	CFX-2		CRS-1		Katani		Finola		Futura 75	Ferimon 12
	Male	Female	Male	Female	Male	Female	Male	Female	Monoecious	Monoecious
(*Z*)-3-Hexen-1-ol (GLV)	-	<1	1	-	1	<1	1	-	2	<1
(*Z*)-3-Hexen-1-ol acetate (GLV)	6	7	9	8	5	4	7	3	37	4
α-Pinene (M)	18	19	19	12	9	8	17	5	16	6
β-Pinene (M)	6	6	5	4	3	3	6	2	5	2
β-Myrcene (M)	40	36	41	51	57	36	40	36	22	37
α-Phellandrene (M)	-	<1	-	<1	-	<1	-	<1	-	<1
2-Carene (M)	-	<1	-	-	-	<1	-	<1	-	<1
3-Carene (M)	-	<1	-	<1	-	<1	-	<1	-	<1
Cyclopentene, 3-isopropenyl-5,5-dimethyl- (M)	<1	-	-	-	-	<1	-	-	-	-
Limonene (M)	1	1	3	3	1	6	2	<1	2	1
Eucalyptol (M)	<1	-	1	-	-	-	-	-	1	<1
(*E*)-β-Ocimene (M)	2	1	1	1	2	2	3	3	-	2
(*Z*)-β-Ocimene (M)	15	14	8	11	9	20	15	29	4	23
γ-Terpinene (M)	-	-	-	-	-	<1	-	<1	-	-
Terpinolene (M)	<1	<1	-	-	-	2	1	-	-	-
Cyclohexene, 4-methyl-3-(1-methylethylidene)- (M)	-	4	-	4	1	8	<1	8	-	15
L-camphor (M)	<1	<1	<1	<1	1	-	-	-	2	<1
p-cymenol (M)	-	<1	-	-	-	<1	-	<1	-	-
Cyclohexene, 1-methyl-5-(1-methylethenyl)- (M)	-	1	<1	<1	1	-	<1	1	-	<1
L-β-Pinene (M)	-	<1	-	<1	-	<1	-	<1	-	-
Sabinene (M)	-	<1	-	-	-	1	-	<1	-	2
γ-Caryophyllene (S)	7	6	7	5	5	4	4	8	6	5
α-Bergamotene (S)	<1	<1	-	<1	-	<1	<1	<1	-	-
(*E*)-α-Bergamotene (S)	-	<1	-	<1	-	<1	<1	1	-	<1
α-Guaiene (S)	<1	-	-	<1	-	<1	-	<1	-	-

(*Z*)-β-Farnesene (S)	<1	<1	-	<1	<1	1	<1	1	-	<1
(*E*)-β-Famesene (S)	<1	<1	-	<1	-	<1	-	<1	-	-
Humulene (S)	1	1	1	1	1	1	<1	2	1	1
β-Selinene (S)	<1	<1		<1	-	<1	-	<1	-	-
α-Farnesene (S)	-	<1	-	-	-	-	-	<1	-	<1
Caryophyllene oxide (S)	<1	<1	-	<1	<1	<1	-	<1	-	-
Dodecane (O)	1	<1	<1	-	<1	-	1	-	<1	-
Tridecane (O)	1	<1	2	-	-	-	1	-	<1	<1
Dodecanoic acid (O)	-	-	2	<1	5	<1	3	<1	2	-
Butyric acid (O)	-	-	<1	<1	-	<1	-	-	-	-
Total Average Emissions	636.88	1205.84	389.87	1385.65	350.54	2268.35	464.43	2895.91	85.5	528.43

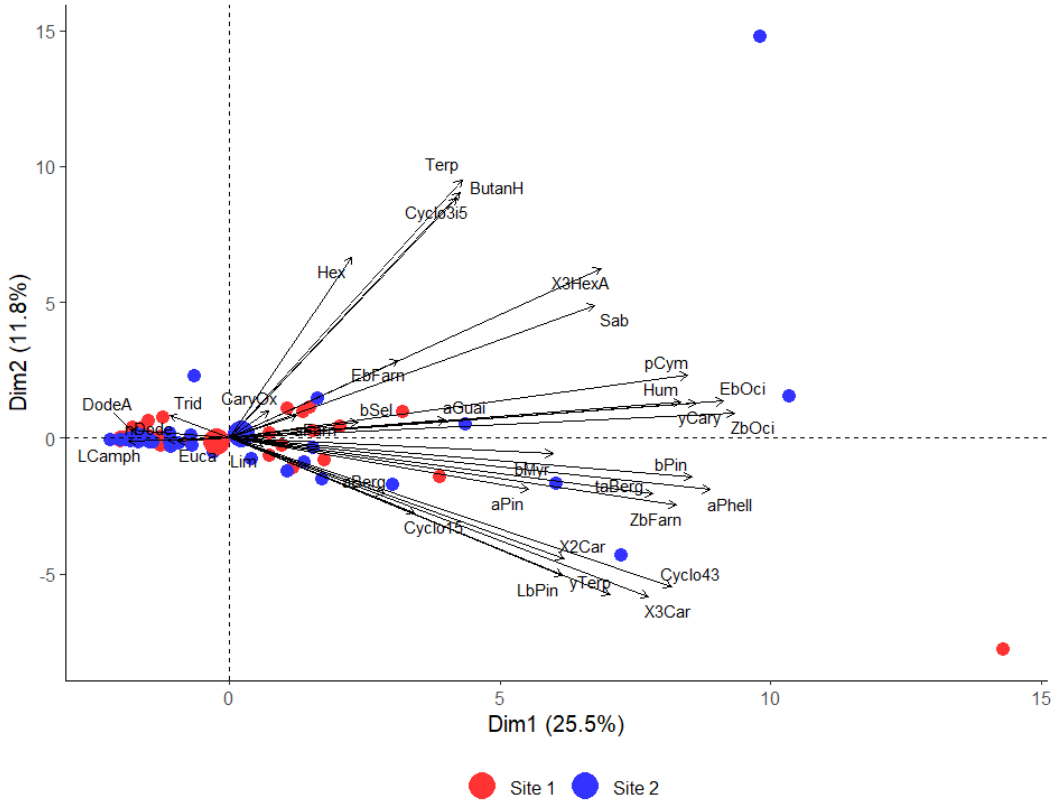

Figure S1: Principal component analysis (PCA) biplot showing scores of individual plants grown at two different sites. The PCA was based on the 35 compounds identified from hemp plants. Small circles correspond to individual samples and larger circles correspond to the treatment average.