

Table 1. Analysis of variance for the effect of ecotype, HM presence in soil and endophyte on yield of aerial parts of plants and CCI values. F-values were given and significance of the effects and interactions with probability higher than 99.9% (***) or 95% (**).

Source of variation	Aboveground biomass collected in:				CCI
	1-st cut	2-nd cut	3-rd cut	all cuts (sum)	
Main effects:					
ecotype [1]	2.75 **	3.64 ***	0.86 ns	1.94 **	2.94 ***
HM in soil [2]	97.05 ***	867.79 ***	205.01 ***	455.9 ***	98.90 ***
endophyte presence [3]	4.03 **	5.86 **	0.05 ns	0.05 ns	2.41 ns
Interactions:					
ecotype x HM	2.36 **	1.90 **	0.91 ns	1.72 ns	4.05 ***
ecotype x endophyte pres.	0.85 ns	1.62 ns	1.15 ns	1.39 ns	0.95 ns
HM x endophyte pres.	0.30 ns	2.60 ns	2.06 ns	0.78 ns	0.01 ns
[1] x [2] x [3]	1.23 ns	1.62 ns	0.81 ns	1.34 ns	1.78 ns

Table 2. Analysis of variance for the effect of ecotype, HM presence in soil and endophyte presence in plants on selected parameters of Chl *a* fluorescence (F_0 , F_M , F_V , F_V/F_M , F_V/F_0 , $(1-V_j)/V_j$). F-values were given and significance of the effects and interactions with probability higher than 99.9% (***) or 95% (**). For T_{FM} , RC/ABS and PI_{ABS} , F-values for none of main effects or their interactions were significant, therefore mentioned parameters were not listed below.

Source of variation	Chl <i>a</i> fluorescence parameters						
	F_0	F_M	F_V	F_V/F_M	F_V/F_0	$(1-V_j)/V_j$	Area
Main effects:							
ecotype [1]	ns	ns	ns	ns	ns	ns	ns
HM in soil [2]	57.67 ***	31.48 ***	24.66 ***	16.70 ***	18.25 ***	9.23 **	ns
endophyte presence [3]	ns	ns	ns	ns	ns	ns	ns
Interactions:							
[1] x [2]	ns	ns	ns	ns	ns	ns	ns
[1] x [3]	ns	ns	ns	ns	ns	ns	ns
[2] x [3]	27.16 ***	13.66 ***	10.36 **	7.10 **	9.51 **	ns	15.47 ***
[1] x [2] x [3]	ns	ns	ns	1.90 **	ns	2.19 **	ns

Table 3. Analysis of variance for the effect of ecotypes, endophyte presence in the host plant and their interaction on the content of HM ions in leaves of E+ (perennial ryegrass colonized by *Epichloë* endophyte) and E- (endophyte free perennial ryegrass). F-values were given and significance of the effects, with probability higher than 99.9% (***)

Source of variation	HM ions content		
	Pb^{+2}	Cd^{+2}	Cu^{+2}
ecotype [1]	124.94 ***	31.26 ***	47.87 ***
endophyte presence [2]	ns	139.48 ***	180.79 ***
interaction [1] x [2]	210.84***	39.22***	95.03***

Table 4. Mean values of the HM ions (Pb^{+2} , Cd^{+2} , Cu^{+2} ; $mg \cdot kg^{-1}$) contents in leaves of E+ (perennial grass colonized by *Epichloë* sp. endophyte) and E- (endophyte free perennial ryegrass) plants and the results of t-test for independent samples. Ecotypes were listed in decreasing order of collection sites latitude.

Ecotype number	Pb^{+2}			Cd^{+2}			Cu^{+2}		
	E-	E+	<i>t</i>	E-	E+	<i>t</i>	E-	E+	<i>t</i>
50	43.9	15.7	154.5 ***	11.8	12.3	n.s.	34.7	14.6	8.0 **
873	16.5	32.7	- 6.8 **	8.4	8.8	n.s.	10.1	37.4	- 47.1 ***
801	21.0	21.4	n.s.	10.3	19.8	- 18.3 ***	15.4	15.1	n.s.
131	29.3	11.0	42.1 ***	14.8	10.3	7.2 **	23.1	13.8	9.8 **
685	29.9	33.2	- 5.0 **	8.0	15.1	- 34.6 ***	20.9	26.5	- 2.9 *
730	20.8	10.2	27.5 ***	7.1	8.1	- 6.7 **	15.1	14.6	n.s.
45	32.6	23.3	12.1 ***	9.1	16.2	- 5.2 **	25.7	30.8	- 3.7 **
273	16.0	28.8	- 23.8 ***	11.8	10.8	3.4 *	14.7	40.6	- 18.4 ***
160	20.2	40.7	- 15.3 ***	7.4	13.4	- 9.2 ***	16.2	47.9	- 17.5 ***
129	13.4	24.4	- 10.7 ***	10.3	13.4	- 11.2 ***	19.7	20.9	- 2.8 *
227	10.4	18.9	- 14.0 ***	12.1	9.1	9.5 ***	14.0	19.6	- 6.4 **
87	24.6	20.2	6.0 **	10.2	12.3	n.s.	21.3	22.1	n.s.
mean	23.2	23.4	n.s.	10.1	12.4	- 3.44 ***	19.2	25.8	- 2.8 ***

Table 5. Geographical description of ecotype collection sites: decimal coordinates of northern latitude [N] and eastern longitude [E], elevation above sea level [m.a.s.l.]. The percentage share of endophyte colonized plants (Ee [%]) in each locality was shown in the last column. Ecotypes are identified by reference numbers the same across the whole manuscript.

Region (code)	Ecotype number	Coordinates [decimal]		Elevation [m.a.s.l.]	Ee [%]
		latitude [N]	longitude [E]		
Podlaskie (POD)	50	53.653	23.138	118	57.4
	873	52.826	21.494	100	98.1
	801	52.374	20.378	69	61.1
Mazowieckie (MAZ)	131	52.195	22.482	150	87.0
	685	52.046	21.301	80	70.4
	730	51.705	21.617	128	64.8
Lubelskie (LUB)	45	50.840	21.924	155	94.4
	273	50.802	20.435	283	70.4
Świętokrzyskie (SWK)	160	50.682	20.732	284	98.1
	129	50.604	20.506	187	100.0
	227	50.539	20.935	185	64.2
	87	50.425	20.559	172	90.6