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### *Flowering induction in the bioenergy grass *Miscanthus sacchariflorus* is a quantitative short-day response, whilst delayed flowering under long days increases biomass accumulation*

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**Flowering induction in the bioenergy grass *Miscanthus sacchariflorus* is a quantitative short day response, whilst delayed flowering under long days increases biomass accumulation**

*Elaine Jensen, Paul Robson, John Norris, Alan Cookson, Kerrie Farrar, Iain Donnison, and John Clifton-Brown*

Supplementary Table S1. Summary statistics for Experiment 1, impact of sloped, stepped, and static photoperiods on leaf number and stem length in two lines of *Miscanthus sacchariflorus*.

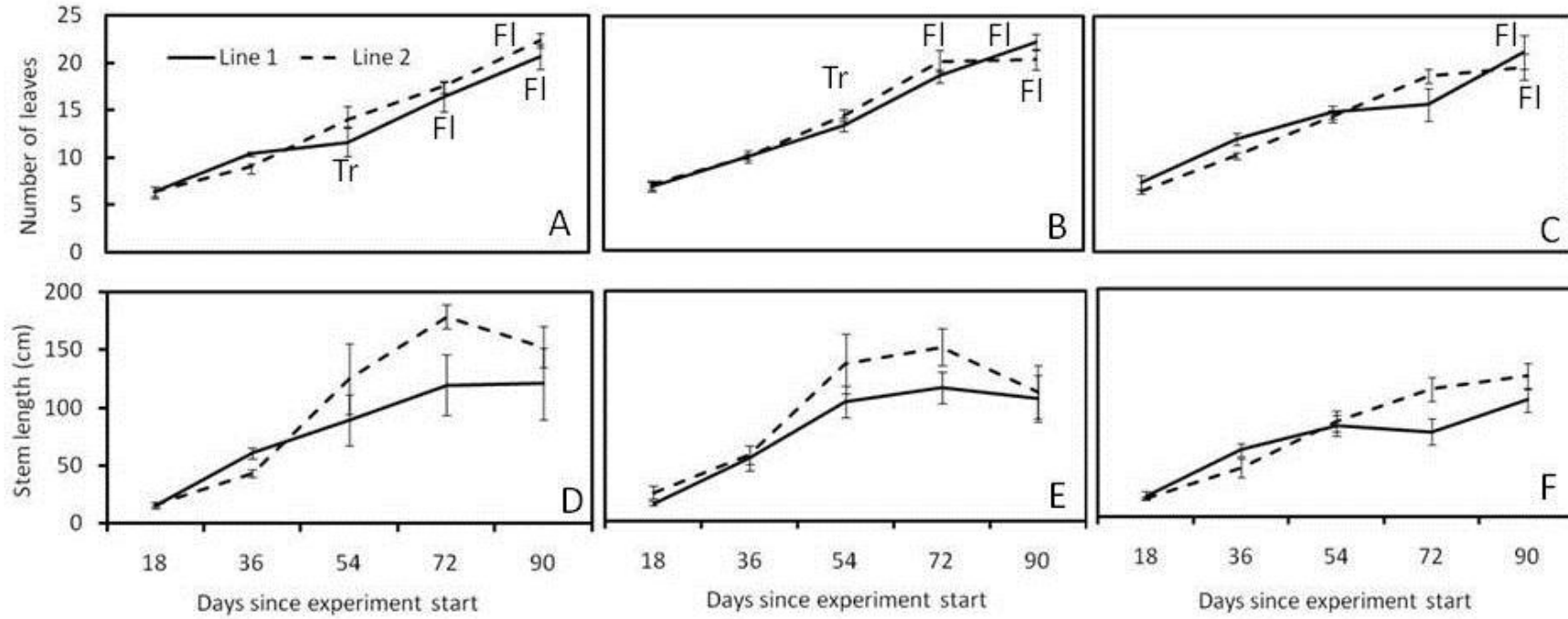
	Line		Treatment			Harvest (days)				
	1	2	slope	step	constant	18	36	54	72	90
Leaf number										
mean	13.64	14.04	13.12	13.77	13.5	6.662	10.02	13.49	16.73	21.07
minimum	5	5	5	5	4	4	6	6	9	15
maximum	25	24	25	25	25	10	14	18	24	25
<i>n</i> =	73	75	72	75	74	45	45	45	44	42
SE	0.638	0.653	0.67	0.661	0.61	0.186	0.241	0.322	0.524	0.415
Stem length (mm)										
mean	74.67	91.65	93.98	85.81	68.65	18.54	55.29	100.4	117.6	125.1
minimum	9.7	10	9.7	11.3	12	9.7	20	14.5	21	48
maximum	196	214	256.5	194.5	154	45.5	110.5	209	214	256.5
<i>n</i> =	71	75	72	74	4.317	44	45	45	44	41
SE	5.348	7.031	8.01	6.358	73	1.129	3.073	6.635	7.771	7.391

Supplementary Table S2. Summary of ANOVA results for the impact of long day versus short day photoperiods on six traits in *Miscanthus sacchariflorus* in a controlled glasshouse Experiment 2.

Variate	Source	df	SS	F	<i>p</i>	l.s.d
Days to flag leaf emergence	Genotype	5	4116.82	16.7	<.001	5.33
	Treatment	1	56894.58	1153.82	<.001	3.08
	Genotype x Treatment	5	2800.12	11.36	<.001	7.54
	Residual	50	2465.48			
	Total	67	762516			
Biomass	Genotype	5	377475	28.06	<.001	39.14
	Treatment	1	181044	67.29	<.001	22.6
	Genotype x Treatment	5	16991	1.26	0.29	55.35
	Residual	66	177561			
	Total	83	762516			
Tallest stem	Genotype	5	294688	111.38	<.001	17.37
	Treatment	1	932.7	1.76	0.189	10.03
	Genotype x Treatment	5	22940	8.67	<.001	24.56
	Residual	64	33867.6			
	Total	81	350360.7			
Leaf number	Genotype	5	926.667	89.1	<.001	1.09
	Treatment	1	105.19	50.57	<.001	0.63
	Genotype x Treatment	5	26.524	2.55	0.036	1.54
	Residual	66	137.286			
	Total	83	1202.952			
Internode length	Genotype	5	260.612	36.73	<.001	0.9
	Treatment	1	0.892	0.63	0.431	0.52
	Genotype x Treatment	5	41.388	5.83	<.001	1.27
	Residual	65	92.238			
	Total	82	413.631			
Stem number	Genotype	5	5954.52	100.66	<.001	2.6
	Treatment	1	55.05	4.65	0.035	1.5
	Genotype x Treatment	5	129.24	2.18	0.066	3.67
	Residual	66	780.86			
	Total	83	6957.67			

Supplementary Table S3. Summary of ANOVA results for the impact of warm versus cool temperatures on six traits in *Miscanthus sacchariflorus* in a controlled glasshouse Experiment 2.

Variate	Source	df	SS	F	<i>p</i>	l.s.d
Days to flag leaf emergence	Genotype	5	2671.82	51.4	<.001	2.43
	Treatment	1	186.01	17.89	<.001	1.41
	Genotype x Treatment	5	88.77	1.71	0.145	3.44
	Residual	66	686.14			
	Total	83	3716.04			
Biomass	Genotype	5	274041.9	61.05	<.001	22.61
	Treatment	1	133.8	0.15	0.701	13.05
	Genotype x Treatment	5	3127.4	0.7	0.628	31.98
	Residual	66	59252.6			
	Total	83	342757.1			
Tallest stem	Genotype	5	410794.2	150.18	<.001	17.66
	Treatment	1	11095.6	20.28	<.001	10.2
	Genotype x Treatment	5	2857.1	1.04	0.399	24.98
	Residual	64	35011.8			
	Total	81	452756.5			
Leaf number	Genotype	5	1335.06	69.3	<.001	1.48
	Treatment	1	4.298	1.12	0.295	0.86
	Genotype x Treatment	5	16.774	0.87	0.506	2.1
	Residual	66	254.286			
	Total	83	1637.56			
Internode length	Genotype	5	310.271	27.49	<.001	1.13
	Treatment	1	36.126	16	<.001	0.66
	GenotypexTreatment	5	9.936	0.88	0.499	1.6
	Residual	65	146.739			
	Total	82	507.223			
Stem number	Genotype	5	4424.49	64.28	<.001	2.8
	Treatment	1	157.44	11.44	0.001	1.616
	Genotype x Treatment	5	117.63	1.71	0.145	3.96
	Residual	66	908.52			
	Total	83	5770.99			



Supplementary Fig.S1 Leaf formation (A-C), stem elongation (D-F), floral transition (Tr), and flag leaf exertion (FI) in lines 1 and 2 from Experiment 1, under sloped (A, D), stepped (B, E), and constant (C, F) photoperiods  $\pm$ SE (n=5). Tr and FI are noted adjacent to the line in which this phenotype was observed.