

Table S1. Annual dry biomass yield in five consecutive growing seasons of the different perennial grasses tested.

Species	Cycle	FB ¹ (t/ha)	DB ² (t/ha)
Control	1	-5,33E-15 ± 3,258 ^{a,3}	-5,55E-17 ± 1,603 ^a
	2	13,68 ± 3,258 ^b	3,21 ± 1,603 ^{ab}
	3	10,04 ± 3,258 ^b	5,04 ± 1,603 ^b
	4	5,03 ± 3,258 ^{ab}	2,61 ± 1,603 ^{ab}
	5	4,24 ± 3,258 ^{ab}	3,88 ± 1,603 ^{ab}
<i>Ampelodesmos mauritanicus</i>	1		
	2	13,99 ± 3,258 ^a	6,50 ± 1,603 ^a
	3	12,56 ± 3,258 ^a	6,64 ± 1,603 ^a
	4	26,55 ± 3,258 ^b	13,13 ± 1,603 ^b
	5	12,25 ± 3,258 ^a	5,88 ± 1,603 ^a
<i>Arundo donax</i>	1		
	2	18,83 ± 3,258 ^a	11,55 ± 1,603 ^a
	3	39,13 ± 3,258 ^b	21,09 ± 1,603 ^b
	4	57,98 ± 3,258 ^c	32,65 ± 1,603 ^c
	5	64,50 ± 3,258 ^c	33,09 ± 1,603 ^c
<i>Dactylis glomerata</i>	1	2,63 ± 1,881 ^a	2,15 ± 0,926 ^a
	2	15,17 ± 1,881 ^b	6,65 ± 0,926 ^b
	3	34,66 ± 1,881 ^c	12,66 ± 0,926 ^c
	4	9,60 ± 1,881 ^b	5,22 ± 0,926 ^b
	5	5,29 ± 1,881 ^{ab}	4,56 ± 0,926 ^{ab}
<i>Festuca arundinacea</i>	1	1,13 ± 3,258 ^a	0,69 ± 1,603 ^a
	2	29,42 ± 3,258 ^c	10,22 ± 1,603 ^b
	3	30,83 ± 3,258 ^c	7,68 ± 1,603 ^b
	4	15,27 ± 3,258 ^b	8,12 ± 1,603 ^b
	5	6,56 ± 3,258 ^a	5,12 ± 1,603 ^{ab}
<i>Piptatherum miliaceum</i>	1	8,88 ± 2,304 ^a	5,30 ± 1,134 ^a
	2	24,19 ± 2,304 ^b	11,18 ± 1,134 ^b
	3	36,46 ± 2,304 ^c	13,86 ± 1,134 ^b
	4	14,67 ± 2,304 ^{ab}	6,92 ± 1,134 ^a
	5	6,37 ± 2,304 ^a	4,85 ± 1,134 ^a
<i>Panicum virgatum</i>	1		
	2	10,79 ± 3,258 ^a	5,36 ± 1,603 ^a
	3	17,17 ± 3,258 ^a	9,73 ± 1,603 ^{ab}
	4	27,95 ± 3,258 ^b	15,10 ± 1,603 ^b
	5	10,68 ± 3,258 ^a	4,88 ± 1,603 ^a
R ²		0,852	0,839
P (Species)		0,000	0,000

P (Cycle)	0,000	0,000
P (Species × Cycle)	0,000	0,000

¹ FB = fresh biomass

² DB = dry biomass

³ Mean ± Standard Error of 4 replicates

Different letters indicate significant differences between species or growing cycle.

Table S2. Bromatology analysis of the different perennial grasses assayed in the second cut (2014).

Species	¹ DB	² A	³ CF	⁴ ADF	⁵ NDF	⁶ P	Cellulose	Hemicellulose	Lignin
<i>Ampelodesmos mauritanicus</i>	93,68 ± 0,250 ^c	6,60 ± 0,156 ^c	37,84 ± 0,497 ^c	44,61 ± 0,507 ^c	72,90 ± 0,466 ^c	7,85 ± 0,275 ^d	39,31 ± 0,383 ^c	28,28 ± 0,587 ^d	5,30 ± 0,321 ^b
<i>Arundo donax</i>	93,97 ± 0,250 ^c	6,15 ± 0,156 ^b	46,00 ± 0,497 ^d	54,24 ± 0,507 ^d	75,13 ± 0,466 ^d	3,44 ± 0,275 ^b	44,46 ± 0,383 ^d	20,88 ± 0,587 ^a	9,79 ± 0,321 ^c
<i>Dactylis glomerata</i>	88,65 ± 0,144 ^b	8,89 ± 0,090 ^c	34,42 ± 0,287 ^{ab}	42,57 ± 0,292 ^b	63,89 ± 0,269 ^a	7,64 ± 0,159 ^d	36,76 ± 0,221 ^{ab}	21,31 ± 0,339 ^b	5,81 ± 0,185 ^{bc}
<i>Festuca arundinacea</i>	87,12 ± 0,250 ^a	9,16 ± 0,156 ^c	33,12 ± 0,497 ^a	40,91 ± 0,507 ^a	64,21 ± 0,466 ^a	5,21 ± 0,275 ^c	37,59 ± 0,383 ^b	23,30 ± 0,587 ^c	3,32 ± 0,321 ^a
<i>Piptatherum miliaceum</i>	87,71 ± 0,177 ^a	7,16 ± 0,110 ^d	35,56 ± 0,351 ^b	42,16 ± 0,358 ^{ab}	70,28 ± 0,329 ^b	7,49 ± 0,195 ^d	35,78 ± 0,271 ^a	28,12 ± 0,415 ^d	6,39 ± 0,227 ^c
<i>Panicum virgatum</i>	94,01 ± 0,250 ^c	4,96 ± 0,156 ^a	46,83 ± 0,497 ^d	55,89 ± 0,507 ^c	84,78 ± 0,466 ^c	1,88 ± 0,275 ^a	47,44 ± 0,383 ^c	28,89 ± 0,587 ^d	8,46 ± 0,321 ^d
R ²	0,979	0,969	0,961	0,966	0,981	0,936	0,964	0,897	0,880
P (Species)	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
P (Block)	0,484	0,264	0,813	0,328	0,003	0,864	0,221	0,892	0,221

(¹DB: dry biomass; ²A: ash; ³TF: total fiber; ⁴ADF: acid detergent fiber; ⁵NDF: neutral detergent fiber; ⁶P: protein).

Different letters indicate significant differences between species or growing cycle.

Table S3. Bromatology analysis of the different perennial grasses assayed in the second cut (2017).

Species	¹ DB	² A	³ CF	⁴ ADF	⁵ NDF	⁶ P	Cellulose	Hemicellulose	Lignin
Control	92,03 ± 0,132 ^{ab}	8,76 ± 0,067 ^c	40,89 ± 0,618 ^b	48,51 ± 0,498 ^b	65,49 ± 0,514 ^a	5,40 ± 0,093 ^d	43,36 ± 0,482 ^d	16,14 ± 0,783 ^a	5,98 ± 0,256 ^a
<i>Ampelodesmos mauritanicus</i>	93,16 ± 0,132 ^c	4,91 ± 0,067 ^b	41,39 ± 0,618 ^c	48,95 ± 0,498 ^b	76,73 ± 0,514 ^c	8,31 ± 0,093 ^g	41,65 ± 0,482 ^c	28,22 ± 0,783 ^{de}	6,86 ± 0,256 ^b
<i>Arundo donax</i>	93,58 ± 0,132 ^d	6,27 ± 0,067 ^b	37,40 ± 0,618 ^c	49,34 ± 0,498 ^b	70,68 ± 0,514 ^b	5,84 ± 0,093 ^c	40,31 ± 0,482 ^b	21,73 ± 0,783 ^b	8,63 ± 0,256 ^c
<i>Dactylis glomerata</i>	93,19 ± 0,076 ^c	5,04 ± 0,039 ^b	40,93 ± 0,357 ^c	48,82 ± 0,288 ^b	74,78 ± 0,297 ^d	4,57 ± 0,054 ^c	42,64 ± 0,282 ^{cd}	25,96 ± 0,452 ^c	6,18 ± 0,148 ^{ab}
<i>Festuca arundinacea</i>	92,32 ± 0,132 ^b	5,56 ± 0,067 ^c	41,74 ± 0,618 ^c	50,70 ± 0,498 ^c	76,26 ± 0,514 ^c	2,05 ± 0,093 ^a	45,08 ± 0,482 ^c	25,56 ± 0,783 ^c	5,63 ± 0,256 ^a
<i>Piptatherum miliaceum</i>	93,03 ± 0,094 ^c	4,09 ± 0,047 ^a	42,17 ± 0,437 ^c	51,04 ± 0,352 ^c	78,28 ± 0,364 ^f	3,86 ± 0,066 ^b	40,14 ± 0,341 ^b	27,18 ± 0,554 ^{cd}	10,90 ± 0,181 ^d
<i>Panicum virgatum</i>	91,91 ± 0,132 ^a	5,45 ± 0,067 ^c	35,69 ± 618 ^a	43,80 ± 0,498 ^a	73,40 ± 0,514 ^c	4,16 ± 0,093 ^f	37,65 ± 0,482 ^a	29,60 ± 0,783 ^c	6,15 ± 0,256 ^{ab}
R ²	0,807	0,969	0,728	0,812	0,934	0,987	0,940	0,842	0,814
P (Species)	0,000	0,991	0,000	0,000	0,000	0,000	0,000	0,000	0,000
P (Block)	0,027	0,000	0,912	0,142	0,026	0,029	0,378	0,564	0,223

(¹DB: dry biomass; ²A: ash; ³TF: total fiber; ⁴ADF: acid detergent fiber; ⁵NDF: neutral detergent fiber; ⁶P: protein).

Different letters indicate significant differences between species or growing cy