

Table 1 Suppl. Study regions for the survey of altitudinal distribution of 2x *Festuca pratensis*, 4x *F. apennina* and their 3x hybrids (* horizontal distance between the highest and lowest point [m]).

Grassland area	Canton	Municipality	Locality of pasture	Co-ordinates of the center of pastures			
				longitude	latitude	altitude (range)	distance*
Glaubenbielen	Obwalden	Giswil	Mörlialp	8 6.53 E	46 49.48 N	1364 (908-1912)	4919
			Passhöhe	8 5.05 E	46 49.16 N	1566 (908-1912)	
Kamor	St. Gallen	Altstätten/Rüthi	Loch	9 29.69 E	47 18.04 N	1406 (953-1779)	4802
Oberseetal	Glarus	Glarus Nord	Saaftenboden	8 58.00 E	47 3.77 N	1372 (893-1856)	2992
Reichenbachtal	Bern	Schattenhalb	Chaltenbrunnen	8 10.12 E	46 42.04 N	1398 (889-1950)	2997
Steiner Berg	St. Gallen	Stein	Ahorn	9 14.69 E	47 12.78 N	1385 (852-1788)	2684
Selamatt	St. Gallen	Wildhaus-Alt St. Johann	Zinggen	9 17.90 E	47 10.54 N	1445 (915-1795)	4757
			Schribersboden	9 17.09 E	47 10.17 N	1526 (915-1795)	

Table 2 Suppl. The distribution of ploidy in progenies of *in situ* pollinated *Festuca apennina* plants compared to occurrence of ploidy in randomly sampled *Festuca* plants at corresponding localities in Switzerland.

Locality	Schribersboden	Küeschte	total (11 localities)
Elevation [m a.s.l.]	1525 to 1545	1540 to 1700	1525 to 1850
Distribution of ploidy in progenies of <i>in situ</i> pollinated <i>F. apennina</i> plants			
Number of 4x <i>Fape</i> mother plants	18	8	49
Number of progeny	375	151	860
Number of 3x hybrid progeny	2	1	3
% 3x hybrid progeny	0.53	0.66	0.35
Number of 4x <i>Fape</i> progeny	369	150	852
Number of 6x <i>Fape</i> ¹⁾ progeny	4	0	5
Distribution of ploidy in randomly sampled <i>Festuca</i> plants at corresponding localities			
Number of plants sampled	51	98	540
<i>Fp</i> [%]	0.0	13.3	2.8
3x hybrids [%]	49.0	21.4	25.9
4x <i>Fape</i> [%]	51.0	65.3	71.3

Table 3 Suppl. The seed set and chromosome constitution of seedlings of triploid *Festuca apennina* × *F. pratensis* mother plants grown as spaced plants at Reckenholz (¹ all mother plants had chromosome constitution 14*Fp* + 7*Fg*-like; ² plant did not survive after planting to the field).

Ploidy	Seed yield [g plant ⁻¹]	Number of germinable seeds [plant ⁻¹]	
2x <i>Fp</i>	15.03	6763	
3x hybrid	<0.1	0.29	
4x <i>Fape</i>	4.16	1572	
Chromosome constitution of seedlings			
3x hybrid mother plant ¹	seedling ID	ploidy	chromosome constitution
313	313/1	4x	n.a. ²
313	313/2	4x	21 <i>Fp</i> + 7 <i>Fg</i> -like
313	313/3	3x	14 <i>Fp</i> + 7 <i>Fg</i> -like
317	317/1	4x	n.a. ²⁾
324	324/1	3x	14 <i>Fp</i> + 7 <i>Fg</i> -like
319	319/1	3x	14 <i>Fp</i> + 7 <i>Fg</i> -like
319	319/2	4x	n.a. ²

Table 4 Suppl. The pollen fertility, seed set, and germination rate of natural *Lolium perenne* × *Festuca pratensis* hybrids and their parental species.

Genotype	Pollen fertility	Total florets	Seed set [%]	Germination rate [%]	Plants established
<i>LpFp</i>	3.9	92131	0.51	0	0
<i>LpLpFp</i>	7.8	12630	0.46	22.0	13
<i>FpFpLp</i>	8.1	81282	0.82	2.1	14
<i>Lp 2x</i>	89.1	17472	44.67	46.5	-
<i>Fp 2x</i>	91.0	17466	33.03	51.0	-

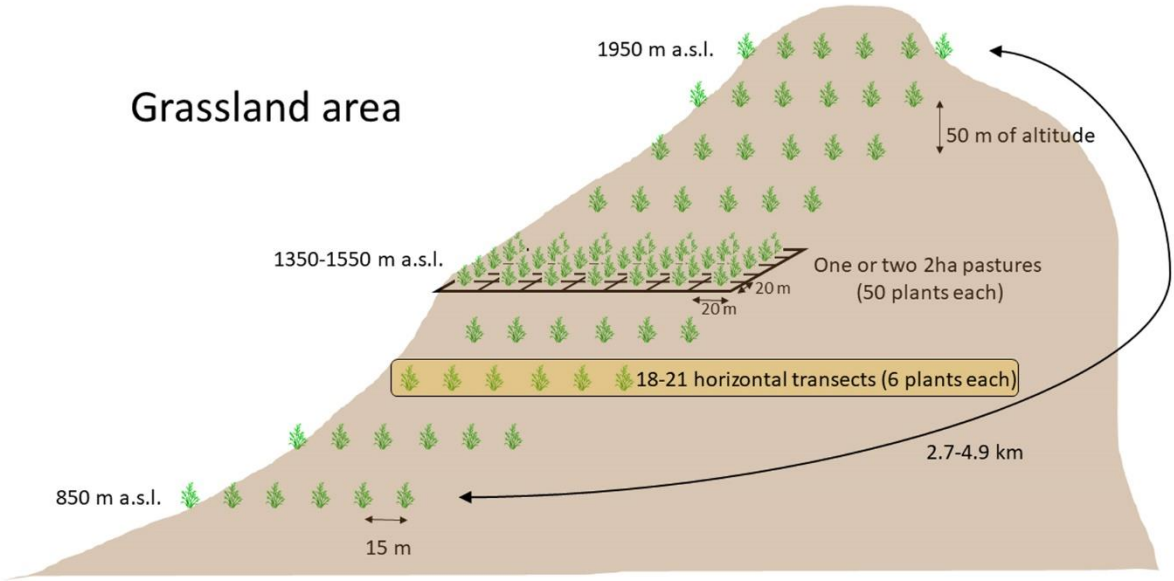


Fig. 1 Suppl. The sampling design for the determination of the distribution of broad-leaved *Festuca* individuals sampled in mountainous permanent grassland areas at different altitudes.



Fig. 2 Suppl. The flowering panicle of a triploid *Festuca apennina* × *F. pratensis* hybrid with bright yellow indehiscent anthers (a)vivipary tillering (b), and aerial tillering (c) observed in *Lolium perenne* × *F. pratensis* hybrids. Photos: Beat Boller (a) and John Harper (b,c).