0

2019

Risk Analysis | Fence Report





FENCE ANALYSIS

ANNUAL TRENDS - FALLS PER JUMPING EFFORT

Annual Fall Trends per Jumping Effort at 2*S to 5*L FEI competitions							
Year	Jumping Efforts	Total Falls	Rate	Horse-Falls	Rate	Rotational-Falls	Rate
2013	461,122	844	0.18%	262	0.057%	39	0.0085%
2014	494,061	950	0.19%	281	0.057%	38	0.0077%
2015	537,537	988	0.18%	260	0.048%	38	0.0071%
2016	535,015	903	0.17%	254	0.047%	29	0.0054%
2017	550,249	896	0.16%	251	0.046%	35	0.0064%
2018	568,368	895	0.16%	273	0.048%	28	0.0049%
2019	552,827	928	0.17%	237	0.043%	26	0.0047%
Total	3,699,179	6404	0.17%	1818	0.049%	233	0.0063%

- Fall rate per effort relatively stable over past five years
- > Horse-fall rate per effort reached a 7-year low of 0.043% in 2019
 - It was stable at 0.057% in 2013 & 2014
 - Consistently between 0.048% and 0.046% from 2015 to 2018
 - Then an obvious drop in 2019 to 0.043%
- Rotational-fall rate also reached a 7-year low in 2019
 - Only marginally better than 2018 figure, but both 2018 & 2019 are much improved

FENCE CATEGORIES

FALL RATE PER EFFORT

2013 to 2019 Fall Analysis of 2*S to 5*L competitions by Fence Category							
Category	Description	Efforts	Falls	Fall Rate	Fall per X efforts	+/- SD	
A	Post & Rails	271,764	721	0.27%	377	5.2	
В	Palisade	127,901	301	0.24%	425	1.3	
С	Square Spread	693,932	1,125	0.16%	617	-10.1	
D	Ascending Spread	551,317	774	0.14%	712	-12.4	
E	Brush	694,990	1,468	0.21%	473	-1.3	
F	Round	778,864	1,728	0.22%	451	0.6	
G	Corner	199,315	903	0.45%	221	22.4	
н	Trakehner	109,957	308	0.28%	357	4.4	
J	Step	187,592	541	0.29%	347	6.5	
к	Water	6,878	14	0.20%	491	-0.3	
L	Ditch	63 <i>,</i> 828	148	0.23%	431	0.7	
Other		8,182	30	0.37%	273	2.9	
Unknown		4,659	23	0.49%	203	4.0	
Total		3,699,179	8,084	0.22%	458		

- > Corners have significantly highest fall rate at 0.45% per jumping effort
- > Other and Unknown also significantly high but a low number of falls

- Steps, Trakehner and Post & Rails also significantly high statistically, but mainly due to high sample size rather than a hugely elevated fall rate.
- > Ascending Spreads and Square Spreads are significantly low in terms of fall rate per effort

2013 to 2019 Horse-Fall Analysis of 2*S to 5*L competitions by Fence Category						
Category	Description	Efforts	Horse-Falls	HF Rate	HF per X efforts	+/- SD
A	Post & Rails	271,764	174	0.064%	1,562	0.1
В	Palisade	127,901	92	0.072%	1,390	1.2
С	Square Spread	693,932	451	0.065%	1,539	0.5
D	Ascending Spread	551,317	220	0.040%	2,506	-6.9
E	Brush	694,990	372	0.054%	1,868	-3.3
F	Round	778,864	473	0.061%	1,647	-0.9
G	Corner	199,315	257	0.129%	776	11.6
н	Trakehner	109,957	97	0.088%	1,134	3.3
J	Step	187,592	173	0.092%	1,084	5.0
к	Water	6,878	5	0.073%	1,376	0.3
L	Ditch	63,828	14	0.022%	4,559	-4.2
Other		8,182	7	0.086%	1,169	0.8
Unknown		4,659	10	0.215%	466	4.1
Total		3,699,179	2,345	0.063%	1,577	

HORSE-FALL RATE PER EFFORT

- Corners remain significantly high
- Steps and Trakehners are also significantly high
- > Unknown is statistically significant but a low number of outcomes
- Ascending Spreads and Brush are significantly low

It should be noted that square spreads were significantly low with regards to all falls, but <u>not</u> significantly low with regards to horse-falls. On the other hand, brush was not significantly low with regards to all fall, but <u>is</u> significantly low with regards to horse-falls.

ROTATIONAL-FALL RATE PER EFFORT

2013 to 2019 Rotational-Fall Analysis of 2*S to 5*L competitions by Fence Category								
Category	Description	Efforts	Rotational Falls	Rotational Rate	Rot per X efforts	+/- SD		
A	Post & Rails	271,764	33	0.0121%	8,235	2.1		
В	Palisade	127,901	16	0.0125%	7,994	1.6		
С	Square Spread	693,932	67	0.0097%	10,357	1.2		
D	Ascending Spread	551,317	31	0.0056%	17,784	-2.2		
E	Brush	694,990	46	0.0066%	15,108	-1.6		
F	Round	778,864	70	0.0090%	11,127	0.6		
G	Corner	199,315	19	0.0095%	10,490	0.6		
н	Trakehner	109,957	12	0.0109%	9,163	0.9		
J	Step	187,592	9	0.0048%	20,844	-1.7		
к	Water	6,878	0	0.0000%		-0.8		
L	Ditch	63,828	2	0.0031%	31,914	-1.4		
Other		8,182	2	0.0244%	4,091	1.6		
Unknown		4,659	3	0.0644%	1,553	4.2		
Total		3,699,179	310	0.0084%	11,933			

- Aside from Unknown (small sample), Post & Rails are the only statistically significant high fence category with regard to rotational falls.
- > Ascending Spreads are the only significantly low fence category

Corners were significantly high with regard to all falls <u>and</u> horse-falls, but they are not significant with regards to rotational falls. The same goes for steps. We do most of our risk analysis based on horse-falls as these generally act as a proxy for the highest risk outcomes. However, it is worth noting that high horse-fall rates at corners and steps are not converting to high rotational fall rates.

HORSE-FALL TRENDS BY FENCE CATEGORY

CATEGORY A: POST & RAILS



Clear downward trend in horse-fall rate per jumping effort



CATEGORY B: PALISADE

> Clear downward trend in horse-fall rate per jumping effort

CATEGORY C: SQUARE SPREAD



> Clear downward trend in horse-fall rate per jumping effort



CATEGORY D: ASCENDING SPREAD

Slight downward trend in horse-fall rate per jumping effort

CATEGORY E: BRUSH



> Stable trend in horse-fall rate per jumping effort



CATEGORY F: ROUND

Slight downward trend in horse-fall rate per jumping effort

CATEGORY G: CORNER



Stable trend in horse-fall rate per jumping effort



CATEGORY H: TRAKEHNER

> Clear downward trend in horse-fall rate per jumping effort

CATEGORY J: STEP



> Clear upward trend in horse-fall rate per jumping effort



CATEGORY L: DITCH

Stable trend in horse-fall rate per jumping effort



USAGE STATISTICS BY FENCE CATEGORY

- ▶ Use of brush has risen steadily from 17.7% in 2013 to a high of 20.2% in 2019
- > Use of square spreads has risen steadily from 17.7% in 2013 to a high of 20.4% in 2019
- ▶ Use of ascending spreads has decreased steadily from 16.1% in 2013 to a low 13.1% in 2019
- ▶ Use of steps has decreased steadily from 6.6% in 2013 to a low of 4.1% in 2019

FRANGIBLE FENCE ANALYSIS

USAGE STATISTICS



Significant and consistent increase in the use of frangible devices

TRENDS IN TYPES OF FRANGIBLE DEVICES BEING USED



Assessment of each type of technology as a percentage of frangible efforts jumped

> Drop in proportional use of traditional + reverse pins



> Drop in proportional use of reverse pins



Remarkable proportional increase in use of Mim clip



> Remarkable proportional decrease in use of traditional pin