Flat Racecourse Ground Measurement Data

Course:	Sample course				Date and time:		Sample			Operator	AT
Flat									Measurement site description or sector (1-5)		
Measure no:	Soil moisture	Cushion-ing	Top Firmness	Lower Firmness	Depth	Energy return	Stiffness (top layer)	Stiffness (lower layer)	Location (or see map overleaf)		Sector
1	54	7.93	31.7	65	26	8.1	147	158	After the crossing point		1
2	59	7.07	25.6	56	30	8.1	95	118	10F		1
3	60	7.32	26.3	56	31	10.6	98	118	9F		2
4	59	7.27	25.9	56	32	9.7	96	120	8F		2
5	52	7.63	27.1	59	31	9.3	104	131	7F		2
6	62	7.35	26.3	58	31	10.2	98	127	6F		2
7	68	6.54	26.8	53	31	7.9	109	101	5F		3
8	56	6.82	27.6	53	30	7.0	113	104	4F		3
9	59	7.48	25.2	59	30	9.4	92	133	6F -Straight		4
10	67	6.94	25.0	54	32	10.0	91	112	5F -Straight		4
11	66	7.18	26.3	58	31	9.1	97	129	4F -Straight		4
12	59	7.30	26.7	58	31	8.9	105	125	3F		5
13	57	7.79	28.1	62	29	10.0	110	147	2F		5
14	57	7.52	27.6	58	32	10.2	109	128	1F		5
15	54	7.54	29.1	57	31	10.2	124	123	WP		5
16											
17											
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25											
									Going value	Variability value	Official going description
Average	59	7.3	27.0	57	31	9.3	106	125			
SD	4.7	0.4	1.7	3.2	1.5	1.0	14.5	14.6		**8.2** Going from VST data	Goingstick
SD%	7.9%	5.0%	6.3%	5.6%	4.8%	11.3%	13.7%	11.7%			

Sector averages										Sector description
Sector 1	56.6	7.50	28.65	60.4	28.5	8.14	121.1	137.6	1.08	Access track bend
Sector 2	58.1	7.39	26.38	57.2	31.4	9.95	98.9	124.0	0.01	Back straight
Sector 3	62.0	6.68	27.21	52.8	30.4	7.46	111.0	102.9	-0.83	Far bend
Sector 4	64.0	7.20	25.49	57.4	31.0	9.52	93.2	124.8	-0.24	Chute
Sector 5	56.7	7.54	27.89	58.7	30.6	9.83	112.1	130.9	0.66	Home Straight

Notes on averages

version 2025-v12

Soil moisture (av of 3 readings) <15 v dry | 15-25 dry | 25-50 good | 50-65 wet | >65 v wet

Cushioning = how much the surface is supportive to a horse <7.5 heavy | 7.5-8 soft | 8-9 gd/soft | 9-9.75 good | 9.75-10.5 gd/f | >10.5 firm

Depth = penetration depth (4m/s) >32.5 heavy | 30-32.5 soft | 26-30 g/s | 23.5-26 good | 22-23.5 gd/f | <22 firm

Firmness = peak deacceleration at impact @ 2m/s (low impact) <26 heavy | 26-28.5 soft | 28.5-31 gd/sf | 31-33 good | 33-35.5 gd/fm | >35.5 firm

at impact @ 4m/s (high impact) <55 heavy | 55-62 soft | 62-70 gd/s | 70-75 good | 75-80 gd/f | >80 firm

Stiffness = surface stiffness. A higher figure indicates a stiffer surface. Top ground layer = 0-10cm <100 heavy | 100-120 soft | 120-140 gd/s | 140-160 good | 160-180 gd/f | 180-200 firm | >200 v firm

Lower ground layer = 10-25cm <130 heavy | 130-150 soft | 150-180 gd/s | 180-225 good | 225-270 gd/f | 270-320 firm | >320 v firm

Energy return = % recoil <7 low | 7-10 average | >10 high

Course variability value <10 even | 10-20 average | >20 variable

Going value (0-10 scale) <1 heavy | 1-2 soft | 2-3.5 gd/soft | 3.5-6.5 gd | 6.5-8.5 gd/fm | >8.5 firm

Report:

Overall: the same morning recorded cushioning of 7.31 kN, top firmness of 27.0 g, lower firmness of 57.5 g and soil moisture of 59.2%. The individual readings and original colour key are retained above.

Access-track bend: cushioning averaged 7.50 kN. The reading after the crossing was 7.93 kN with top firmness of 31.7 g, compared with 7.07 kN and 25.6 g at 10F. This was the clearest local contrast.

Back straight: cushioning averaged 7.39 kN, top firmness 26.4 g and lower firmness 57.2 g. The 7F point was more supportive than 9F, 8F and 6F.

Far bend: this had the lowest sector cushioning, averaging 6.68 kN, with lower firmness of 52.8 g. Top firmness averaged 27.2 g, showing why the upper reading should be considered alongside the lower response.

Straight chute: cushioning averaged 7.20 kN and top firmness 25.5 g. The home straight averaged 7.54 kN, top firmness 27.9 g and lower firmness 58.7 g. The 2F point had the highest home-straight cushioning at 7.79 kN.