HARVEY BARRIER DRAW SOFTWARE

- FORENSIC REVIEW -

Harness Racing Authorities throughout Australia use the Harvey software program to administer industry racing and registration functions.

As part of good governance of this system, Racing Information Services Enterprise (RISE) has over the last 24 months instigated two forensic reviews of the Random Barrier Draw system.

As part of the review, the statistical properties of the Random Number Generator (RNG) were examined, along with the algorithm for the draw process. Statistical tests were conducted with over 2 million samples generated. The RNG barrier draw process was assessed to be random and the system has no built-in factors whereby it can recognise stablemates or a particular horse's details from previous barrier draws. Horses are assigned barriers with uniform probability, with no information about horses taken into account beyond those required as per the barrier draw rules. These reviews confirmed the Harvey system provides randomness to the barrier draw process.

Another aspect reviewed by RISE was that of barrier draws for horses trained by the same trainer in the one race. The following table presents results (from a set of four years' sample data) for races with two horses from the one trainer. The test here compares the observed percentage adjacent with the expected percentage. These results are wholly consistent with a random allocation of horses, irrespective of trainer.

Draw Length	Number of Draws	Adjacent (%)	Exp. Adjacent (%)	P-Value
3	963	69%	67%	0.109
4	1227	48%	50%	0.199
5	1277	40%	40%	0.945
6	1237	33%	33%	0.968
7	1191	27%	29%	0.353
8	1286	25%	25%	0.923
9	1372	22%	22%	0.954
10	1677	19%	20%	0.443
11	1358	18%	18%	0.939
12	660	17%	17%	0.608
13	196	13%	15%	0.382
			Total:	**0.821**

Concerns about trainers having adjacent barriers have been raised, which is possibly explained via incorrect intuition about the likelihood of this happening. For example, with three horses, two of which are from the same trainer, four of the six possible orderings will have the trainer's two horses adjacent. This is 66.7%; in the actual data the percentage was close to this, 69%, and the difference is not statistically significant. But even with a large number of horses, the chance of adjacent barriers is not small; for 12 horses the probability is 17% if the draw is truly random, and 17% is what was observed.

On the basis of these outcomes, the RISE Board has determined that the Random Barrier Draws software will continue to serve as the best and fairest system for the industry.

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