

Efficiency Calculations

If a horse travels a distance in a time that is close to the average (par) time for that race class / course / distance, then one can be pretty sure that he has ran his race with a reasonable amount of efficiency.

However, having said that, I tend to view race times in two parts, the Pace Time (the time from start to the 400meter pole) and the Final Time (the time for the final 400 meters). A horse can run a fast pace and slow final, or vice versa and still record a decent race time. Good horses can run a decent pace and a decent final time.

Pace And Final Speed Ratings

Pace and Final Speed Ratings are produced for each horse in each race as follows.

$$\text{PaceSpr} = 80 + ((\text{ParWinnerPaceTime} - \text{HorsePaceTime}) * 10)$$

Where

- ParWinnerPaceTime is the average time from start to 400 meter pole for all winners of races over the current race's Course and Distance
- HorsePaceTime is the time from start to 400 meter pole for the horse in the current race.

$$\text{FinalSpr} = 80 + ((\text{ParWinnerFinalTime} - \text{HorseFinalTime}) * 10)$$

Where

- ParWinnerFinalTime is the average time for the final 400 meters for all winners of races over the current race's Course and Distance
- HorseFinalTime is the time for the final 400 meters for the horse in the current race.

Average Pace And Final Speed Ratings

Average Pace and Final Speed Ratings are then calculated for all races since the 2014/15 season by class of race. Note that Speed Rating by course and distance are similar in value, though we need to identify the difference by class of race.

The following table shows the difference speed ratings by class of race. Note that C0 incorporates Group races

<u>_Class</u>	<u>_AvgWinrPace Spr</u>	<u>_AvgWinrFinalSpr</u>
All	81	80
C0	87	84
C1	83	85
C2	83	83
C3	82	81
C4	79	79
C5	78	77

Pace And Final Efficiency Figures

For each horse in each race result we calculate the percentage of the Pace Spr of the Average Pace Spr and also the percentage of the Final Spr of the Average Final Spr. This gives an indication as to how fast (greater than 100%) or slow (less than 100%) that the horse ran compared to average during the pace and final parts of the race.

Many times we see fast pace figures and slow final figures implying that the horse ran too fast early and had little energy left for the finish. Or slow pace figures and fast final figures, implying that the horse may have had too much ground to make up, though this interpretation should be made after inspection of the horse's position in running.

The final efficiency figure is determined by multiplying the Pace percentage by the Final percentage figures. A figure here of greater than 100% implies a good performance. Either both Pace and final percentages were good, or either was very good and over compensates for the lesser value.

Note that a similar percentage value of the race speed rating over average race speed rating would give a similar overall efficiency value, however the race speed ratings that I use are based on par values for all runners, not winners.