

The Dosage system A European perspective

By Steve Miller

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The Dosage system has become more "Euro friendly"

The Dosage system has been around for a long time, yet it is only in recent years that it has begun to be used extensively in Europe. In America no one in his or her right mind would consider buying an unraced horse without first referring to its Dosage. In Europe, and perhaps the UK in particular, it has been viewed with mistrust, as if it were akin to a form of alchemy, which has had the audacity to meddle in areas of conventional pedigree analysis. Most objections to the Dosage system have been levelled at it from a European perspective, however, saying that it is not appropriate for European racing due to certain important stallions being missing from its roster of sires (which numbers almost two hundred).

Inclusion of influential European sires

Due to my work with Dr Steven Roman (the originator of the modern system), Dosage has gained greater credence in Europe through the inclusion of stallions such as Sadler's Wells, Ela-Mana-Mou, Busted, Niniski and most recently Shirley Heights. These were some of the most serious omissions from the system from a European point of view. Sadler's Wells has proved a highly significant source of middle-distance stamina and has been included as a Classic/Solid chef-de-race. Ela-Mana-Mou bridges a critical gap, reaching back to Alycidon and his sire Donatello, as an unqualifi-



Steve Miller relaxes after a busy day at at Royal Ascot.

ed source of extreme stamina (Professional category). Busted has been included as a Solid chef-de-race, while Niniski and Shirley Heights have both been proposed and accepted as Classic/Professional additions. (Detailed notes on these can be found on Steven Roman's web site at www.chef-de-race.com).

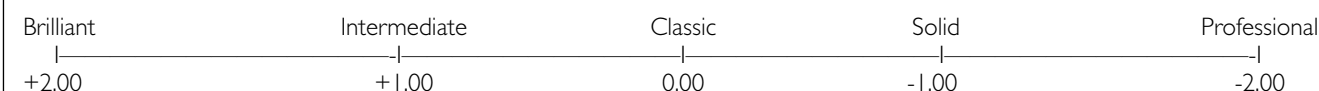
Dosage remains the most important tool for predicting the distance potential of horses based on certain sires in the first four generations of their pedigrees and is especially useful when form information is either scant or absent. The sires must be included among the assigned chiefs of breed (or so-called chefs-de-race).

Categories

Chefs are divided into five categories: *Brilliant*, *Intermediate*, *Classic*, *Solid* and *Professional*. The categories correspond to a range of distance potential, from **Brilliant** (most speed, least stamina) to **Professional** (least speed, most stamina). **Classic** represents the 'ideal' balance of speed and stamina.

Chefs may be assigned to more than one category, with points split between the categories. A chef in the first generation is as-

Centre of distribution scale



signed 16 points, decreasing to eight, four and two points, to account for the diminishing influence of sires farther back in the pedigree. It assumes that a grandsire is half as influential as a sire, etc.

Three statistics are generated by Dosage: a **Dosage Profile** (DP), a **Dosage Index** (DI), and a **Centre of Distribution** (CD).

Horses with a DI higher than 4.00 or a CD higher than +1.25 are not reckoned to be able to win high-class races at 10 furlongs or more carrying level weights at equal weight-for-age.

When Generous won the Derby, for example, he beat a field of largely non-stayers, with Marju and Star Of Gdansk (who both subsequently proved to be milers) filling the places. Star Of Gdansk's Dosage figures were a clear signal that he stood precious little chance in a Group 1 race at 12 furlongs (DP 10-10-9-1-0 = 30, DI 4.45, CD +0.97). Two-thirds of his points (20) are grouped in his first two categories (Brilliant and Intermediate) and only one point is evident in the stamina wing of his pedigree. The fact that the horse was able to be placed in the Derby when it appears that he would not stay is a tribute to the quality of the horse. He was always going to be up against it with Generous, however, who looked a blueprint for a Derby winner, with nine of his 22 points in his stamina wing (DP 4-1-8-9-0 = 22, DI 0.69, CD 0.00).

A DI of 1.00 and/or a CD of 0.00 indicate an ideal balance of speed and stamina. Montjeu (by Sadler's Wells), the winner of multiple Group 1s at 10-12 furlongs, like Generous, is another excellent example of a horse that closely approximates this benchmark (Dosage profile 5-1-22-8-0 = 36, Dosage index 0.89, Centre of distribution +0.08).

Origins

The technique used for classifying thoroughbred pedigrees by type, originated in the early part of the 20th century from the research of the Frenchman Lt. Col. J J Vuillier. In his classic study of the extended pedigrees of the best runners in England and France (*Les croisements rationnels dans la*

race pure) Vuillier observed that very few stallions appeared with any great frequency. He called these stallions *chefs-de-race*. He also noted that the degree of inheritance attributed to these *chefs-de-race* was essentially constant in all pedigrees, the absolute value (or Dosage figure) varying from sire to sire. He demonstrated that in successive 15 to 20-year time frames, new series of *chefs* emerged which eventually established their own fixed degree of influence. This process, in which a new group of *chefs* periodically become dominant, provides a rational model for the evolution of the thoroughbred racehorse. Vuillier believed that the objective in breeding should be to attain Dosage figures in the foal as close as possible to the established Dosage figures for the breed. Vuillier practised his theories in the employ of the Aga Khan III, breeder of such notables as Bahram, Majideh, Mahmoud and Nasrullah.

Some years later, the Italian Dr Franco Varola (in *Typology of the racehorse and The functional development of the thoroughbred*) developed a modified version of Dosage that retained the principle that thoroughbred evolution proceeds through the influence of a much smaller number of stallions in any era than is widely appreciated. Varola did, however, shift the emphasis from quantity (i.e. the degree of inheritance associated with individual sires) to quality (i.e. the pattern of aptitudinal traits inherited from key ancestors). Discounting the generation in which his expanded list of *chefs* appeared, he arrived at a distribution of aptitudinal traits in a given pedigree that described the "type" of horse being analysed. The most significant point made



The legendary stayer Double Trigger, now serving as a stallion at East Burrow Farm. Readers of the Scandinavian Racing Magazine receives a special £ 500 travelling discount, if choosing Double Trigger for their mare in 2002.

by Varola was **that the characteristics transmitted by sires were not necessarily those they possessed themselves as racehorses**. The focus, instead, was entirely on the qualities passed on as breeding animals. Thus, in contrast to conventional pedigree analysis – which is based on an historical perspective of ancestral performance – Dosage relies on the dynamics of inheritance.

The influence of Ela-Mana-Mou

Taking an example. Before Ela-Mana-Mou's inclusion into the Dosage system the Dosage numbers of his seven Group 1 winners looked in desperate need of revision. They previously appeared as:

	Dosage profile	DI	CD
Sumayr	1-2-7-0-0 = 10	1.86	+0.40
Almaarad	3-2-1-0-6 = 12	0.85	-0.33
Eurobird	2-3-5-8-0 = 18	0.71	-0.06
Natski	1-3-8-8-0 = 20	0.67	-0.15
Emmson	6-8-4-0-0 = 18	8.00	+1.11
Snurge	5-2-7-0-0 = 14	3.00	+0.86
Double Trigger	1-2-1-0-0 = 4	7.00	+1.00